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ORIGINAL ARTICLES.

ON THE RESULTS OF TREATMENT OF SIMPLE FRACTURE OF THE SHAFT OF THE FEMUR.¹

BY STEPHEN SMITH, M.D.,
OF NEW YORK.

At the last meeting of the American Surgical Association, the following preamble and resolution were adopted :

" WHEREAS, In the treatment of fractures of the shaft of the femur the question often arises as to what is a satisfactory result in a given case ; therefore, be it

" Resolved, That a committee be appointed by the President to report at the next meeting of the Association what in their judgment, under the methods of treatment now employed, should be considered as satisfactory results."

The following committee was appointed : Dr. Stephen Smith, of New York ; Dr. D. Hayes Agnew, of Philadelphia ; Dr. David W. Cheever, of Boston ; Dr. D. W. Yandell, of Louisville ; Dr. Charles T. Parkes, of Chicago ; Dr. P. S. Conner, of Cincinnati ; Dr. Charles B. Nancrede, of Ann Arbor ; and Dr. Hunter McGuire, of Richmond.

The question referred to your committee has an important bearing upon the jurisprudence of surgical practice. One of the most frequent causes of prosecution of surgeons is the alleged mal-treatment of cases of fracture of the femur. Unfortunately, in the trial of these suits the testimony of surgeons appearing as witnesses has too often been contradictory. The effect of this want of uniformity of opinion among surgeons of equal opportunities for experience and observation has usually proved disastrous to the just determination of the question at issue. Courts have been led to regard expert testimony as only confusing, while juries have rejected it altogether.

It would greatly subserve the ends of justice in this class of cases if there were that harmony of views among surgeons, on the special subjects of litigation, that would secure the confidence of both courts and juries. And this consensus of opinion would undoubtedly have the greater weight if it was in the form of a precise statement, deliberately made, and authoritatively endorsed by a body or-

ganized like this Association. In this view your committee has endeavored to obtain the experience of individual members for the purpose of formulating conclusions that they may submit for adoption by the Association. Accordingly the committee issued the following circular to members, viz. :

"What should be considered as a satisfactory result (other than perfect union) in the treatment of a simple fracture of the shaft of the femur?"

The question was so framed as to elicit the answer that would be required in court. Thirty-four members replied, and their answers have been tabulated for convenience of reference. Although there are noticeable in these replies certain differences of opinion on the several points raised, these differences are by no means so great and irreconcilable as not to admit of being embodied in a general statement designed to harmonize and unite them for future reference. The committee has accordingly briefly reviewed the several questions raised, and has endeavored to secure a common ground on which the Association can take its position, and on which members can individually stand before the courts.

1. *Bony union.* The necessity of firm bony union as a result of the treatment of a fracture does not admit of discussion. The failure to secure this result, so frequent in fractures of the shaft of the femur, raises questions in each individual case quite foreign to the objects of this report. It is pertinent, however, to state that the amount of callus should not be taken as a criterion of the success of treatment. It may be so slight as not to admit of detection, or so abundant as to form a well-marked mass, and yet the function of the limb be completely restored. The practical question is as to its firmness.

2. *Relation of the long axes of the fragments.* It is the aim of the surgeon to restore the normal relation of the long axes of the fragments in order to prevent angular deformity. This he endeavors to accomplish by the exact apposition of the fractured surfaces, and by securing the normal curves of the shaft. But he finds that in the vast majority of instances he cannot effect his purpose. The exact apposition of the fractured surfaces is generally impossible ; nor can the normal long axial line be restored with mathematical precision. Overriding of the fragments will, as a rule, occur in spite of the most accurately adapted appliances and the most assiduous care. Nor does this failure to secure perfectly accurate adjustment of the fragments, both as to the frac-

¹ Being the report of a committee read at the meeting of the American Surgical Association held at Washington, D. C., Sept. 1891.

tured surfaces and as to the long axis, imply loss or even impairment of function. For, if parallelism of the long axes of the two fragments is secured, notwithstanding the ordinary overriding of the fractured surfaces, the gait of the person and the strength of the limb need not be impaired by such union. We may conclude, therefore, that a satisfactory result is obtained when the long axis of the lower fragment is continuous with the line of, or with a line nearly parallel with the axis of the upper fragment, or, in other words, when there is no perceptible angular deformity at the seat of fracture.

3. *Correspondence of the anterior surfaces of the fragments.* On the correspondence of the anterior surfaces of the fragments depends the position of the foot. If these surfaces are on the same plane the foot will have its normal outward inclination from the center of the body, and in proportion as the anterior surface of the lower fragment deviates from the plane of the upper fragment will the foot incline from its normal position. If the deviation outward is considerable there will be permanent lameness of the patient. The result of treatment, therefore, to be satisfactory, requires that the anterior surfaces of the fragments shall be on the same plane, or, in other words, that the normal outward inclination of the foot shall be preserved.

4. *Length of limb.* The length of the injured limb when compared with its fellow was formerly regarded as the test of success of treatment. Hence, in the final estimate of the result the length of the fractured limb was carefully ascertained and compared with the uninjured limb, and the difference noted. The records of all past time show that shortening of the fractured limb was the universal rule, whatever the method of treatment pursued, and the question to be determined in each case was simply as to the degree of such shortening existing. The recent discovery of the natural discrepancy in the lengths of the lower limbs has considerably modified our estimate of this test of treatment. It now appears that a difference in the length of the lower limbs, once considered an evidence of unsuccessful treatment, is after all not incompatible with a perfectly natural formation of these limbs. It is established by careful measurement that 90 per cent. of healthy, uninjured persons have lower limbs of unequal lengths. This fact proves that shortening of one lower limb, as compared with the other, is the normal development of the skeleton of man. But the difficulty of estimating the value of shortening as a test is still further enhanced by the fact that one limb, as the left, is not invariably longer than the other, or the right. It appears that in 35.8 per cent. the right limb is the longer, while in 54.3 per cent. the left is the longer. It is, therefore, manifestly impossible in any case to determine the exact

result of treatment so far as regards shortening. It might happen, if the limbs were found of equal length, that the naturally longer limb was fractured, and only the usual amount of shortening occurred, which equalized their length; or, if the shortening was found to be considerable, as an inch and a half, the difference might be explained thus: the fractured femur was originally the shorter, and the usual, unpreventable shortening occurring during treatment has been added to that already existing; or, again, we could explain those very rare cases in which the fractured limb is alleged to be found the longer after treatment, by assuming that it was previously much the longer, and that the shortening has not been sufficient to equalize the lengths of the two.

In view of these facts we must conclude that, within given limits of shortening, measurement of the limbs affords no accurate or reliable guide as to the success or failure of treatment. Those given limits have never been fixed by authorities, and even had they been agreed upon previously to the discovery of the natural difference in the lengths of the limbs, they would have had no substantial foundation. With these new facts to aid us, we are in a position to create a much more just standard, for it will have a scientific basis. In the first place, it must be accepted as a legitimate conclusion that if the amount of shortening does not exceed the average natural difference in the lengths of the limbs, viz., about one-half an inch, the result will be in accordance with the laws of Nature in the conformation of the lower extremities. In other words, such a result ought to be considered *perfect*. Secondly, if the shortening does not exceed the extreme limit of difference in the lengths of natural limbs, viz., about one inch, the result should be regarded as satisfactory. Thirdly, an unsatisfactory result, as regards shortening, exists only when the degree of shortening exceeds the greatest difference of natural limbs, viz., one inch.

5. *Lameness.* Lameness, limping, or a halt, after recovery from fracture of the femur, is a symptom of very variable significance. Some patients will have a limp in their gait with but one-fourth of an inch shortening, while others will not limp who have a half or even an inch of shortening. It is an important fact—bearing upon the question of how far shortening of the limb after fracture of the thigh, with lameness, is to be taken as proof of disability—that people who have, normally, one leg longer than the other do not limp, even when the difference has been found to be fully one inch. Undoubtedly, this failure of persons to recognize the natural discrepancy in the lengths of their lower extremities is due to the habit, early acquired, of adjusting the pelvis to neutralize the defect, with a slight compensatory curvature of the spine.

NAME OF SURGEON.	OPINION.	REMARKS.
W. W. Keen, Prof. Prin. Surg. and Clin. Surg. Jeff. Med. Col., Phila., Pa.	Perfect union with not over half or three-quarters of an inch of shortening, enabling the patient to walk without limping.	
John Ashhurst, Jr., Prof. Surg. Med. Dept. Univ. Pa., Phila., Pa.	In the case of an adult: A useful limb without obvious limp or deformity, and with shortening of not more than one inch.	I have never seen, either in my own practice or in that of other surgeons, recovery without slight shortening (in the adult), though this shortening may be as little as from a quarter to half an inch.
O.H. Allis, Surg. Presb. and Jeff. Med. Col. Hosp., Phila., Pa.	Only such a result as permits the patient to assume his customary duties.	Shortening to the extent of an inch or more is not incompatible with great strength and usefulness. Outward angular deformity in the upper and middle thirds, even with slight shortening, results in feeble legs, and necessitates a cane or crutch.
N. Senn, Prof. Surg. Rush Med. Col., Chicago, Ill.	Proper axis of bone, useful joints, and perhaps from half an inch to an inch and a half of shortening.	
Roswell Park, Prof. Surg. Med. Dept. Univ. Buffalo, Buffalo, N. Y.	A useful limb with not to exceed half or five-eighths of an inch shortening, with joints which at the end of from ten to twelve weeks after leaving bed respond to all calls made upon them, and muscles which do the same.	
D. Hayes Agnew, Hon. Prof. Clin. Surg. Med. Dept. Univ. of Pa.	Union with shortening not exceeding three-quarters of an inch, with the normal curves of the bone little, if any, exaggerated.	Union after such a fracture, in the adult, without shortening, never occurs. The changes that take place at the seat of injury render such a result impossible. There is always an appreciable loss of osseous tissue at the ends of the broken fragments, corresponding to the extent of the blocking up of the vessels of the Haversian canals by coagula. There are cases of delayed union, from causes often inexplicable, and which, in order to renew the work of repair, sometimes require the rubbing together or attrition of the fragments. In cases of this nature the degree of shortening, after consolidation, will rarely be less than one inch, in consequence of the increased absorption of bone.
John Homans, Surg. Mass. Gen. Hosp., Boston, Mass.	Union in the line of the proper axis of the femur with a shortening of not more than three-quarters of an inch.	
Geo. W. Gay, Surg. Boston City Hosp., Boston, Mass.	In adults bony union with no great lateral deformity, and <i>not over one inch shortening</i> .	I never expect less than three-quarters of an inch shortening, and have never seen a case without some shortening. Under ten years of age the result is satisfactory if the shortening does not exceed three-quarters of an inch.
R. A. Kinlock, Prof. Surg. Med. Col. State of South Carolina, Charleston, S. C.	There should be no obvious deformity; the physiological functions of the limb, including all of the articulations, should be preserved, and the shortening should not be greater than half an inch.	
Christopher Johnston, Emeritus Prof. Surg. Univ. of Maryland, Baltimore, Md.	The best result is not a perfect union only, but a perfect coaptation of the fractured ends of the bone.	
L.C. Lane, Prof. Surg. Cooper Med. Col., San Francisco, Cal.	Recovery with length of limb equal to what existed prior to the fracture, with some deviation from normal outline.	
John H. Packard, Surg. Penn. and St. Joseph's Hospitals, Philadelphia, Pa.	Perhaps it may be said, as the nearest approach to a definite standard, that in an ordinary case of fracture of the shaft of the femur, there should not be more than one-half or three-quarters of an inch of shortening to be detected by measurement. I should look much more at the ultimate effect upon the gait of the patient; I say <i>ultimate</i> because so often a degree of shortening, which at first causes a decided limp, is overcome later by a slight compensatory curve in the spine. Attention has been somewhat too much concentrated upon mere shortening to the exclusion of angular or rotatory displacement.	This coaptation, considering the mass of flesh surrounding the fractured bone, is very difficult indeed. The shape of the bone, itself arched, making a more decided arch with the femoral neck, is opposed to a straightening of the whole femur. A gentle <i>curve</i> of this bone under treatment in fracture, and the following by the lower fragment of the natural rotators outward of the upper iliacus and psoas magnus and the adductors, 1, 2, and 3, which all turn and keep outward the upper fragment above a point at which the fracture may lie, are well to bear in mind. If extension be employed the above precepts of curves must be kept in view, and shortening may be avoided, and continuity, even, be best promoted. This can be obtained by traction and counter-traction in the extended position, traction to be made by weight, pulley, and rubber adhesive plaster, and counter-traction by the patient's body. The traction force will vary from ten to thirty pounds according to the age and muscular resistance of the subject, accurate adjustment and restitution to anatomical form being secured while the patient is deeply anesthetized.
J. R. Weist, Surg. to St. Stephen's Hosp., Richmond, Ind.	In simple fractures of the shaft of the femur in the adult, union of bone without other deformity than from one-half to three-quarters inch shortening.	I do not think it possible to establish an exact standard of good result for fractures of the thigh, since that which could be easily secured in the case of a sober, quiet, and healthy person, might be wholly unattainable in one who was nervous and restless, or the subject of delirium tremens. The obliquity of the line of fracture does not, in my opinion, affect the result in any marked degree. Rotatory displacement, the toes being everted, makes a patient permanently lame. In this, as in almost all other fractures, the most fruitful source of bad results is the tendency of so many to adopt a routine treatment. If the requirements in each case were carefully studied, and the proper appliances and effective maintenance of the apparatus insured, I think good results would be obtained in a larger proportion of cases.
		In patients under twelve years, I should consider union without shortening or other deformity a satisfactory result.

NAME OF SURGEON.
John B. Roberts, Prof.
Anat. and Surg. Phila.
Polyclinic, Phila., Pa.

OPINION.

1. Absolutely firm union. 2. So little difference in length of the limbs that no *marked* limp occurs in walking. 3. Not much angular deviation in the normal line of the bone. 4. Not enough rotatory deviation to make a marked inversion or eversion of the leg or foot.

REMARKS.

2. As from one-quarter to one-half inch difference in length often exists in normal limbs, that much shortening may remain after fracture in one of a pair of symmetrical legs without making the result unsatisfactory. Even greater shortening may remain after fracture of a long leg without making the result unsatisfactory; while a less amount occurring after fracture in a short leg will cause a decided limp and make an otherwise satisfactory cure seem unsatisfactory. I do not believe that any fracture of the shaft of the femur is likely to be cured without some shortening, though it may, I admit, be impossible to prove its existence during life. 3. Slight bowing is of no more importance than that often observed in uninjured femurs and tibias of adults.

In a transverse fracture my experience has been that a very large proportion result in perfect union, with possibly one-quarter inch or so of shortening in some few cases.

A. Vander Veer, Prof.
Surg. and Clin. Surg.
Albany Med. Col.,
Albany, N. Y.

Basil Norris, Surg.
U. S. A.

In oblique fractures we must expect some shortening, not to exceed one-half inch.

Half an inch shortening would be to me a result entirely satisfactory.

R. B. Bontecue, Surg.
Marshall Inf., Troy,
N. Y.

S. H. Weeks, Prof.
Surg. Med. School of
Maine, Portland, Me.

L. S. Pilcher, Prof.
Clin. Surg. Post-Graduate
Med. School,
New York.

Not more than one inch shortening, and the original axis of the shaft restored without inversion or eversion of the foot. In adults, when the fracture is oblique, as it usually is, firm union with shortening of half an inch.

In my experience the cases are exceptional in which a simple fracture of the shaft of the femur cannot be conducted to a cure with a shortening of less than half an inch; often in young subjects an appreciable shortening will remain.

W. S. Forbes, Prof.
Anat. Jeff. Med. Col.,
Surg. Prot. Episcop.
Hosp., Phila., Pa.

1. The long axis and anterior surface of the inferior fragment should be in perfect accord and continuous with the long axis and anterior surface of the superior fragment. 2. The bond of union should have its transverse diameter but little, if any, in excess of the transverse diameter of the femur above and below the seat of fracture. 3. There should be but little, if any, shortening of the bone *several years after fracture* and its more skilful treatment. 4. The soft parts of the extremity should be free from scars and marks of the apparatus used in the treatment.

J. D. Rushmore, Prof.
Surg. Long Island
Col. Hosp., Brooklyn,
N. Y.

A. T. Cabot, Surg.
Mass. Gen. Hosp.,
Boston.

If the ordinary function of the limb has been restored, even with some deformity and moderate shortening, if the patient is able to use the limb for walking.

In children under fourteen full length ought to be obtained; in patients over that age any result which gives from one-half to three-quarters of an inch shortening is to be looked upon as satisfactory.

DeF. Willard, Prof.
Orthoped. Surg. Univ.
of Pa., Phila.

J. H. Brinton, Prof.
Pract. Surg. and Clin.
Surg. Jeff. Med. Col.,
Phila.

J. E. Mears, Dem.
Surg. Jeff. Med. Col.,
Phila.

J. A. Comingor, Prof.
Orthopedic and Clin.
Surg. Central Col.
Phys. and Surg., Indianap.

H. H. Mudd, Prof.
Surg. Anat. and Clin.
Surg. St. Louis Med.
Col., St. Louis.

When the shortening is less than half an inch, the foot and lower limb are in good position, and the restoration of function is complete.

Any result is satisfactory in which the shortening does not exceed three-quarters of an inch, and the proper relations of the axis of the limb are maintained.

Union with shortening of the limb from one-half to three-quarters of an inch.

The fewest number of fractures of the shaft result in full length of limb; my cases have always fallen a little short; the average is about half an inch.

We should obtain union with the femur of normal length; the thickening at the point of fracture should be moderate in degree, not enough to interfere with the function of the leg, or to produce deformity.

When the fracture is transverse, union occurs without shortening. My method of treatment is Buck's extension apparatus, with elevation of foot of the bed for counter-extension, and sand-bags on each side of the limb.

I cannot, however, approve the idea of setting up any particular degree of shortening as a satisfactory or unsatisfactory result. Perfect restoration to the length that existed prior to the injury will, of course, be aimed at by every surgeon, and if he has done the best he could for his patient under the particular circumstances of the case, always variable—*i. e.*, in no two cases the same—the result, whatever it may be, must be accepted as surgically satisfactory for that case.

2. This fact would show, for the most part, that a good original adjustment of the fragments had been made by the surgeon, and that he had gently but firmly held the fragments in the proper position during the process of treatment, and that consequently there had been but little irritation of the parts. 3. I have so often found some little shortening that could not be attributed to difference in the length of the two femurs, which has been so often noticed in persons who never had a fracture, that my clinical experience leads me to think that, for the most part, some shortening usually follows a fracture, even a simple one, of the femur. I believe the shortening to be the result of the angular projection on the proximal surfaces of the fragment, and the shortening of the bond of union under the pressure of the superincumbent weight in early going about before solidity takes place.

In cases in which the deformity is noticeable by the use of tights, and interferes with previous occupation, or necessitates a change, a moderate deformity might constitute an unsatisfactory result.

In measuring the leg for shortening it is to be remembered that the legs are not always even in length in the first place, and a fracture of a shorter leg might give an apparently greater shortening than was real. The more muscular the leg the greater the chance of shortening due to contraction of the muscles and the slipping of the fragments.

I consider that a certain degree of loss of the structure by absorption of the two fractured ends is almost universal.

I have measured many cases of my own and others, and they were invariably a little short. I think it barely possible to obtain full length in oblique fracture. The method used by me is the plaster-of-Paris; its application has been made within a few hours or a day or two.

The function of the limb should be practically perfect.

NAME OF SURGEON.
L. McL. Tiffany, Prof.
Surg. Univ. Md.,
Baltimore, Md.

OPINION.

1. Functionally the united femur should be as capable, as a weight-carrier and as a lever, as before the break. 2. Anatomically we do not consider rotatory or angular deformity. 3. Shortening is included in a satisfactory result.

S. Marks, Surg. St.
Mary's Hosp., Mil-
waukee, Wis.

Taking into consideration all oblique, sim-
ple fractures of the femur in adults, an
average of from one-half to three-quar-
ters of an inch shortening.

T. G. Morton, Surg.
Pa. Hosp., Phila., Pa.

A moderate degree of shortening, say half
an inch, more or less.

M. H. Richardson,
Surg. Mass. General
Hosp., Boston, Mass.
T. F. Prewitt, Prof.
Prin. and Pract. Surg.
and Clin. Surg. Mo.
Med. Col., St. Louis,
Mo.

J. E. Owens, Prof.
Surg. Anat. and Op.
Surg. Chicago Med.
Col., Chicago, Ill.

A straight limb with a shortening of less
than an inch.

A shortening not exceeding a half or three-
quarters of an inch.

When the shortening does not exceed an
inch and a half, and there is no unnatural
bowing or angularity at the seat of frac-
ture.

E. H. Bradford, Surg.
Boston City Hosp.,
Boston, Mass.

E. M. Moore, Surg.
St. Mary's Hosp.,
Rochester, N. Y.

In adults I should hope for no greater
shortening than half an inch.

In teaching I have taken the position that
a shortening of one inch was allowable.
Few persons are rendered lame with this
relation between the two limbs after the
sensibility of the new tissue has passed
away. The attempt to prevent any dimin-
ution of the length of the limb is painful
and sometimes prevents union, so that
for a long time I have regarded a short-
ening of half an inch as a result of typical
excellence, assuring contact and pre-
venting lameness.

REMARKS.

1. The presence of persistent pain implies something more than a simple fracture; function is to be tested *months* after union is firm. 2. Practically it is found that the slight angular distortion not so unusual in the upper portion of the shaft does not impair function. In childhood there is a tendency to the correction of angular deformity. 3. Distinction is to be made between fracture occurring before and after the growth of the individual has been attained; prior to that period the shaft appears to grow (lengthen) more rapidly during a certain time than does the unbroken femur; hence shortening is comparatively less than in adult life. I do not remember having seen a museum specimen of adult femur united after fracture without shortening. Measurements to determine shortening after fracture are unsatisfactory owing (*a*) to physical difficulties, and (*b*) to the natural differences in the limbs.

Much depends upon the obliquity of the fracture and its location.

In most cases the line of fracture determines the shortening, which may be unavoidable and considerable; in transverse or partially transverse fractures little or no shortening is likely; in oblique or comminuted fractures more or less shortening will ensue, according to circumstances. Many other factors are liable to influence deformity, so that each case must be judged according to the nature of the injury. Asymmetry of the lower limbs is now recognized as the rule and not the exception, and, therefore, measurements can really have no certain practical value.

I would consider the result satisfactory if the patient could walk without a limp, and if there was neither pain nor disability.

When the shortening exceeds an inch and a half there is some particular reason for it, such as inability to bear extension or the pressure of coaptation splints, or undue restlessness from confinement, or tampering with the dressings, or delayed union, or disobedience to the doctor's rules and failure to follow his advice, or a faulty method of treatment, or inefficiency in the management of a good method.

This, however, is a general statement, and will necessarily vary with the nature of the fracture, whether transverse or oblique, or in what portion of the shaft the fracture should occur. The question of a satisfactory result, independent of union, resolves itself into a consideration of the amount of shortening and deformity from an improper line between the two fragments and the proper position of the foot. The most obvious deformity is clearly that arising from the shortening of the limb. If not treated at all, this will vary from two to four inches, seldom less and seldom more. The deformity produced by the passing of the fragments is greater very much in proportion to the shortening; when the fragments overlap so far that the whole diameter of the bone is applied to that of its fellow, a huge tumor is apt to result, increased by the exudates. Moreover, a bending of the limb is likely to result when the shortening is marked, especially when the fracture is at the juncture of the upper and middle thirds. Transverse fracture is an idealism; practically it does not occur; it is only approximated. When a shortening of only half an inch exists there is a slight deflection from a straight line, which becomes essentially corrected by absorption of the broken fragments. I make no exception when the fracture is greatest below the lesser trochanter; when treated properly there should be scarcely the half-inch shortening allowable in the middle of the shaft.

If, in an adult, a fracture is followed by a change in the lengths of the legs there may be a temporary limp, due to the failure of the patient at once to adjust the pelvis and spine to this new condition. But in a vast proportion of cases the limp gradually disappears, or, if it becomes permanent, the result is due to the careless habits of the patient. This fact was strikingly illustrated at one of the military hospitals during the late war. This hospital became the rendezvous of soldiers who

had recovered from crippling injuries of the lower extremities. It was noticed by the surgeons that there was a striking difference in the degree of lameness or limping among the men having the same degree of disability, and that some men with shortening of one leg to the extent of one-fourth of an inch had a much greater limp than others with from three-fourths of an inch to an inch of shortening. An attempt was made to overcome this defect by forming a company, and placing the men under the

drill of an officer of the regular army, with instructions to prevent limping in their exercise. The result was surprising. The limping gait quickly disappeared, even in those suffering from the greatest degree of shortening and deformity. This experiment proved that lameness or limping is not a reliable test of impairment of function, and should have only a relative value in an estimation of results.

We must conclude that lameness should be regarded as a proof of an unsatisfactory result only when it is due to a degree of shortening that renders a limp a necessity, and cannot be overcome by the efforts of the patient, but requires the aid of artificial appliances. We can find no better guide to determine the degree of shortening compatible with a useful limb, so far as lameness is concerned, than by referring to the standard that is furnished us in the discrepancy in the lengths of limbs that Nature has established. As has been stated, the most accurate measurements of healthy persons give an average difference in the lengths of the legs of about one-half an inch. But this difference may amount to one inch (or even more) in perfectly healthy and well-formed limbs. We may justly conclude, therefore, that a shortening of one-half an inch as the final issue of treatment of a fracture of the thigh, and after a proper use of the limb, gives a perfectly natural relation between the two limbs, and hence is an ideal result. We may conclude further, that if the shortening, after use, amounts to one inch, the result is still satisfactory, for this relation of the limbs as to length is still in accordance with the natural law of conformation. These measurements, it should be stated, are of the length of the entire leg, and not of the thigh only.

6. *Restoration of function.* The function of the lower limb is that of locomotion, with power to sustain whatever superincumbent weight is necessarily imposed by Nature or art. Essential to this function is strength of the femur at the seat of fracture, free and unimpeded action of the muscles, and proper motion of the knee-joint. The determination of the degree of restoration of function cannot be made until a suitable time has elapsed after the treatment has been suspended; for the recovery of the free action of the muscles and of the knee-joint requires persistent use of the limb for a variable period, depending much upon the age of the patient and the severity of the injuries inflicted when the fracture occurred.

We should fix upon one year after treatment has been discontinued and the patient has begun to use the limb as a reasonable period before a final judgment can be formed as to the completeness of restoration of function. If at the close of that period the patient has no other disability than the

lameness, within the limits of shortening already given, the result should be considered satisfactory.

7. *Conditional results.* There is a class of cases in which our estimate of results must be based upon a careful study of the special circumstances connected with the treatment of each case. Results widely different from those already given may and must be regarded as satisfactory in these cases, when we give proper consideration to the conditions under which the treatment is necessarily pursued. The treatment may have been conducted under circumstances in which it was impossible to secure proper apparatus, or the injury may have involved other parts so as to prevent the patient from taking the necessary position, or the patient may have suffered from delirium or other disturbing malady. These cases must be regarded as exceptional; each one is to be decided according to its special features; and they need no further notice in this report than simple recognition.

Your committee respectfully submit the following conclusions, which they believe are in accord with scientific investigations, and which embody the experience and the opinions of the members of the Association, as far as they have been communicated to the committee.

CONCLUSIONS.—A satisfactory result has been obtained in the treatment of fracture of the shaft of the femur when—

1. *Firm bony union exists.*
2. *The long axis of the lower fragment is either directly continuous with that of the upper fragment or the axes are on nearly parallel lines, thus preventing angular deformity.*
3. *The anterior surface of the lower fragment maintains nearly its normal relation to the plane of the upper fragment, thus preventing undue deviation of the foot from its normal position.*
4. *The length of the limb is either exactly equal to that of its fellow, or the degree of shortening falls within the limits found to exist in 90 per cent. of healthy limbs, viz., from one-eighth of an inch to one inch.*
5. *Lameness, if present, is not due to more than one inch of shortening.*
6. *The conditions attending the treatment prevent other results than those obtained.*

THE CONDITION AND PROSPECTS OF THE LIBRARY OF THE SURGEON-GENERAL'S OFFICE, AND ITS INDEX-CATALOGUE.¹

BY JOHN S. BILLINGS, M.D.,
SURGEON, UNITED STATES ARMY.

Of late years those physicians in this country who make use of medical literature in connection with

¹ Read before the Association of American Physicians, Washington, Friday, September 25, 1891.

their investigations or writings, have, for the most part, become acquainted with the resources of the "Library of the Surgeon-General's Office," as it is officially designated, and many of them are much interested in its progress and prospects. I am often asked how the collection is progressing, how near it is to completion, what it is most in need of, when the *Index-Catalogue* will be done, whether it will be followed by a supplement, whether there is danger that the work of the Library may be checked in the future through changes in administration, and so on.

These manifestations of interest are, of course, very gratifying, and when the Chairman of your Program Committee demanded a ten-minute paper from me on this occasion it occurred to me that I would try to answer some of the foregoing questions, so far as I am able to do so.

The present condition of the Library is fairly satisfactory. It now contains 102,000 volumes and 152,000 pamphlets, counting as pamphlets all octavos and smaller sizes having less than 100 pages, and all quartos of less than 50 pages. During the last five years, *i. e.*, from July 1, 1886, to June 30, 1891, the additions to it have included 25,237 volumes and 55,900 pamphlets, or an average of 5000 volumes and 11,000 pamphlets yearly. Of this annual increase, about 2000 volumes and 4000 pamphlets have been of new or current literature, and the remainder have been publications of previous years or centuries. About one-fifth of these accessions, of both new and old literature, have been presented; the remainder have been purchased. So far as mere size goes, it is the largest collection of medical literature in the world, and for the last five years has been increasing more rapidly than any other similar library containing 25,000 volumes and upward. It is especially rich in medical periodicals and Transactions of societies, of which classes it now contains about 34,350 volumes. The American, English, French, and German literature in all branches of medicine that has appeared during the present century is very fully represented, and over 90 per cent. of all the medical literature of the world for the last ten years is in the library. The whole is conveniently arranged in a fire-proof building, and is catalogued.

So much for the favorable side of the situation; now for a statement of some of the principal defects and deficiencies. Of medical incunabula, it contains 140 volumes, or about one-eighth of the medical works published prior to 1500. Of the published works of the ancient Greek, Roman, Arabian, and Hebrew medical authors, it has one or more editions of nearly all, but these editions are not in every instance the best. Of the early Spanish and Portuguese medical literature, it has almost nothing; of French medical works of the sixteenth century but little; of

French medical theses prior to 1800, very few. Of the English, French, and German medical books of the 16th, 17th, and 18th centuries that are of any importance historically or practically, it has about 75 per cent.; of the Italian, about 50 per cent.; and of the Spanish, about 25 per cent. In its periodical literature it is especially deficient in the Spanish and Italian prior to about 1850, in the French prior to 1780, and in the Russian prior to 1860. If I could add to it about ten thousand volumes of my own selection, it would, I think, contain at least one edition of every medical work of any practical use or importance that has ever been published, although it would still not possess some fifty thousand pamphlets and theses, each of which might be of some historical interest.

These deficiencies in the Library are being gradually supplied, but the acquisition of the older books and pamphlets that are still wanted is becoming every year a slower, more difficult, and more costly process. This is due to the fact that the books still wanted are many of them rare, and only appear in the market at intervals of from five to fifty years; to the fact that the number of competitors for such books is increasing, and, above all, to the fact that the expenditure of time required for the examination of the numerous catalogues and lists received at the Library in order to select those books that are still wanted is becoming very great in proportion to the results obtained. To check off a catalogue of a thousand medical books with the result of finding about four that are really desirable, a dozen that may be accepted as filling gaps, and about twenty small theses that are not in the collection, involves an amount of clerical work that costs as much as, if not more than, the books thus obtained. In one sense it is true that this is a satisfactory condition for a library to be in, but, nevertheless, the loss of time spent in such checking is to be regretted.

With regard to current medical literature, the amount increases each year, but the rate of increase is becoming slower. Comparing the period of 1890 with that of 1880, we find that the number of medical writers increased from 11,600 to about 14,200, or a little over 22 per cent. There were published in 1890 about 2000 volumes and 4000 theses, pamphlets, and reports in medical literature. Of the volumes, about 930, or not quite half, were furnished by medical journals and Transactions, as against 864 of the same kind in 1880—being an increase of about 7½ per cent. Excluding the journals, Transactions, and theses, the number of medical books and pamphlets published in 1890 was about 1850 as against 1600 in 1880—being an increase of about 15½ per cent. This indicates that the increase in the number of medical writers, and in the quantity of medical literature that they have pro-

duced, has not been proportionally as great as the increase in population and in the number of physicians in civilized countries during the decade, which confirms the statement that I made ten years ago, that the rate of increase is becoming smaller.

In the United States the proportion of periodical literature to the whole is much greater than it is in other countries—for in 1890 it produced about 250 volumes of medical periodicals, 60 volumes of new medical books, 20 volumes of later editions, and 28 volumes of reprints of English books and Transactions; while France produced about 160 volumes of medical periodicals, 250 volumes of new medical books, 20 volumes of later editions, and 15 volumes of Transactions; Great Britain about 85 volumes of periodicals, 140 new books, 45 volumes of later editions, and 12 volumes of Transactions; and Germany about 175 volumes of medical periodicals, 175 volumes of new books, 80 volumes of later editions, and a dozen volumes of Transactions. All this is exclusive of pamphlets. Of course, quantity in medical literature has no definite relations with quality or value, but I am speaking now merely with reference to the number of separate pieces that are to be obtained, catalogued, and cared for, and you will see that, including journals, Transactions, reports, books, pamphlets, reprints, and theses, we shall have at least 6000 new pieces to provide for this year. The indexing of articles in journals and Transactions will in addition involve the writing and classifying of about 25,000 titles.

Of the *Index-Catalogue* of the Library, twelve volumes have now been printed—carrying the work to S. The thirteenth volume is nearly ready for the press, and the manuscript for the rest of the work—at least two volumes more—has been prepared, but has not yet been finally corrected and arranged. As we can print but one volume a year, it is evident that during the twelve years that have elapsed since the publication was commenced a large number of titles of books and articles received too late to be placed in their proper places must have accumulated, and this accumulation becomes more rapid every year as we get further down the alphabet in the course of printing the work. At present the number of unprinted titles thus accumulated under authors and subjects down to S, probably amounts to 70,000 author- and 240,000 subject-titles, the latter of course including the titles of indexed journal articles. If these were now printed they would make about four volumes of the size of the volumes of the *Index-Catalogue*, and three years hence, when this first series of the *Catalogue* is finished, there will probably be material on hand sufficient to form at least five volumes of a supplement or second series, which will no doubt expand into six volumes by the time the printing of this second

series is finished—that is, if the Library continues to increase as it has done for the last five years.

The twelve volumes of the *Index-Catalogue* already printed contain 137,578 author-titles covering 66,855 volumes and 120,000 pamphlets, 522,092 subject-titles covering 128,284 titles of books and pamphlets, and 393,808 articles in journals and Transactions. The titles of articles in journals and Transactions are printed only under subject-headings, those of books and separately-paged pamphlets and reprints are printed twice—once under the name of the author and once under the name of the subject. All the cards for journal articles have been preserved, and when the printing of the *Catalogue* is completed, it is proposed to assort these according to authors, so as to bring under each man's name the title of all the articles he has written that have been indexed. Whether this will ever be printed I do not know. The chief errors in the *Index-Catalogue* are those of omission. About fifty serious errors in the first twelve volumes have thus far been detected, but the main defect is the failure to include under the proper subject-headings some books and journal articles that are in the collection. We have gained experience as the work has progressed, and the later volumes seem to be more full and accurate than the first.

Of main and subordinate subject-headings the *Index-Catalogue*, as a whole, contains about 20,000, and in placing the proper headings on the subject-cards to indicate where each is to be placed, it is necessary, in order to secure good results, that the person doing this shall not only remember the general scheme of classification, but the details of between four and five thousand of the subject-headings used. If he makes an error, the card goes to the wrong place and is liable to be omitted in printing; but, in the long run, it is sure to be discovered and placed where it belongs.

In connection with the *Index-Catalogue* a few words with regard to the *Index Medicus* may be of interest. This, as you know, is in the main a record of the titles of new books and articles in periodicals received at the Library, to which are added the titles of a few books advertised as published but not yet received. It is not published by the Government, but by Mr. George S. Davis, of Detroit, who pays all expenses connected with it, and is entitled to the thanks of all who use it for his public spirit and enterprise in maintaining its existence, since the amount received by him for subscriptions barely meets the cost of its publication. At present 482 subscriptions are made for this periodical, of which 90 come from the U. S. Army Medical Department, 224 from the rest of the United States, and 168 from other countries. Of the subscriptions from foreign countries, Australia sends 5; Belgium, 2;

Brazil, 1; Canada, 2; England, 41; France, 26; Germany and Austro-Hungary, 63; India, 1; Ireland, 2; Italy, 1; Mexico, 1; Russia, 9; Scotland, 9; Sweden, 2; and Switzerland, 2. Of the home subscribers, California furnished 8; Colorado, 1; Connecticut, 3; District of Columbia, 13; Georgia, 2; Illinois, 9; Kentucky, 1; Louisiana, 3; Maine, 2; Maryland, 10; Massachusetts, 31; Michigan, 8; Missouri, 4; Nebraska, 1; New Jersey, 5; New York, 69; Ohio, 8; Pennsylvania, 33; Rhode Island, 4; South Carolina, 1; Tennessee, 1; Vermont, 1; Virginia, 1; Wisconsin, 4. For the large cities, the figures are, New York, 50; Philadelphia, 32; Boston, 24; Baltimore, 10; Cincinnati, 7; Chicago, 6; San Francisco, 4; Detroit, 4; and St. Louis, 3.

This is the last of the statistics of the Library and matters connected with it which will be inflicted on you at this time. The figures themselves may be dull, but some interesting, and even amusing, conclusions may be drawn from them, which I leave for you to do.

In conclusion, I may say that the future prospects of the Library are excellent. It is not dependent on the skill or energy or good-will of any one man; it is becoming more and more known to, and more and more used by, the members of the medical profession, and so long as they are interested in it, the necessary appropriations will be made and the skilled force employed to increase, preserve, and catalogue it. The service rendered by a number of those employed in the Library is not a mere matter of money—they are deeply interested in their work and proud of the results, and they can and will carry it on and instruct others who will come after them and do likewise. They have to handle much rubbish, for the proportion of what is both new and true is not much greater in medicine than it is in theology, but in a great national collection this is unavoidable, and the best they can do is to make a first rough assortment, and then make the whole accessible to those who wish to use it. There is no doubt that the publication of the *Index-Catalogue* will be completed, and that a supplement will speedily follow.

Just at present the most unsatisfactory feature about the Library is the fact that many of its books and journals are not fully available for use owing to the fact that we cannot get them bound. Under existing laws all the binding of the Library must be done at the Government Printing-office, which has not room or men sufficient to do the work required for the different departments of the Government and for members of Congress. The result is that the Library now has about 10,000 unbound volumes, and this number is increasing every year. When a journal is sent to be bound it may be six months or more

before it is returned. With the erection of additional accommodations for the Government Printing-office it is to be hoped that this evil will in time be abated; but under the present system there will always be more or less delay in making recent books and periodicals available for use. The most effectual remedy would be a change in the law, whereby the Library could have its own binding done in its own building and under its own control.

CLINICAL MEMORANDUM.

ARSENITE OF COPPER IN DIARRHEA.

BY C. S. STEWART, M.D.,
OF SCRANTON, MISS.

My attention having been called to the efficacy of arsenite of copper in all forms of bowel trouble, I have managed to find enough cases for testing its virtues, and have come to the conclusion that although its healing qualities are overrated, it is still very useful in subacute or chronic forms of diarrhea, rather than in the earlier stages. The following cases will illustrate:

CASE I.—Mrs. H., aged thirty-five years, had diarrhea with varying degrees of severity for two years, and had tried changes of treatment and climate to no purpose. As she had previously a malarial attack, I used quinine in the beginning of the treatment, but the principal remedy was arsenite of copper, the one-hundredth of a grain given each day. Improvement was noticeable at once and in six weeks recovery was complete.

CASE II.—H. R., two years old, began with an attack of summer diarrhea, and after a week improved slowly under the usual remedies recommended for such cases, but shortly afterward suffered a relapse, and the condition was fully as bad as before. Then all treatment was stopped, and arsenite of copper, the one-hundredth of a grain given during the twenty-four hours, was continued alone, and was followed by speedy and permanent improvement.

CASE III.—M. V. C., aged forty years, was a steady drinker and subject to attacks of diarrhea. The present attack began as a "bilious spell," but the bowel-condition grew steadily worse, and despite nearly every remedy offered for such conditions, there was a continual decline, followed by a slow improvement after a couple of weeks. The patient then took a trip to Healing Springs, Ala., but returned in a worse condition than before, with eight or ten stools each day, a considerable elevation of temperature, and the tongue looking like a piece of raw beef, the stomach irritable, and nausea easily provoked. Since hardly anything could be given, arsenite of copper, because of its tastelessness, was begun, and its administration was followed by a subsidence of the bad symptoms and a speedy convalescence.

The physiological action of this remedy has not been sufficiently explained, but it evidently exerts both a tonic and astringent effect, correcting the disorder by restoring a healthy condition of the bowel, and leaving the patient well. The drug is soluble in water, and perfectly tasteless, and, especially with children, its range of usefulness is great. Further experience will, no doubt, determine the limits of its usefulness.

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OF MEDICAL SCIENCE.

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SATURDAY, SEPTEMBER 26, 1891.

THE CONGRESS OF AMERICAN PHYSICIANS AND SURGEONS.

WHEN one thinks of such professional gatherings as that which has just been held at Washington, the question arises why so many busy men should steal from their needed rest the time to prepare their many papers, to attend the meetings, and at much and varied expense leave home and practice at a particularly busy season. The answer will be found to lie deeper than would at first appear. The desire to obtain honor in the eyes of one's fellows, the ideals of personal ambition, sociability, etc., are hardly ever wanting in the actions of any large body of men, but in none are they more subordinate than in the profession of medicine. Such a ferment of new thought and scientific zeal pervades its members that selfish aims are forgotten in the enthusiasm of new discovery and therapeutic power. It is indeed a marvellous thing—this of a splendid army of men seeking with ardor its own professional undoing. However far we may be from an absolute prophylaxis and cure of all disease, the fact remains that every true physician is devoted to that ideal—seeking to make his own office a useless one. It is precisely this aspect of our professional life that can never fail to elicit the admiration of a discriminating and intelligent

public sentiment. These men do not meet to discuss how they can best obtain the plums of insurance fees, the greatest commercial and legislative advantage. The keynote and rallying cry of every speaker has been like that of the old Roman CATO, with disease as our Carthage.

As we go to press the great Congress at Washington is closing its sessions. It is as yet too early to pronounce any critical judgment as to the proceedings in detail or as a whole, but the tremendous vitality and earnestness of American medicine is manifest in the simple fact indicated by the summarizations of the official programs: There were announced more than 400 addresses, papers, and discussions. Besides the Americans present, there were at least nine invited guests from England, four from Scotland, three each from France and Germany, as well as others, all taking active part in the proceedings. But, of course, size and numbers do not count in such matters, unless at the same time quality dominates. In the current and coming numbers of THE NEWS, our readers will have an opportunity of judging for themselves as to the scientific value of the contributions. Extraordinary endeavors have been made to secure in advance, directly from the participants, either their original papers or their own authoritative abstracts. The promptness and willingness with which compliance has followed request will place every reader of THE NEWS under obligations to the members of the various societies. Author and reader have a mutual interest in a trustworthy report.

SOCIETY PROCEEDINGS.

CONGRESS OF AMERICAN PHYSICIANS AND SURGEONS.

Second Triennial Meeting,
Held at Washington, September 22, 23, 24 and 25, 1891.

(Specially reported for THE MEDICAL NEWS.)

FIRST DAY—SEPTEMBER 22D.

THE Congress was called to order by the Chairman of the Executive Committee, DR. WILLIAM PEPPER, who introduced the President, DR. S. WEIR MITCHELL, of Philadelphia.

The first scientific matter brought before the Congress was a discussion on "Conditions Underlying the Infection of Wounds, Including a Discussion of Disinfection with Reference to Treatment of Wounds, of the Relation of Bacteria to Suppuration, of the Resistance of Tissues to the Multiplication of Bacteria, and of the Effect of Antiseptic Agents on Wounds."

The discussion was opened by the Referee, DR.

WILLIAM H. WELCH, of Baltimore. He said that the presence of certain kinds of bacteria as an essential condition of wound-infection is so well established that discussion of this point is not likely to arise. The comparatively simple conception that a wound to which bacteria gain access necessarily becomes infected has been greatly modified. The traumatic infections present their own peculiar problems. The doctrine of wound-infection involves the consideration of many varying and often complicated factors relating both to the agents of infection and to the individual exposed to the infection.

The subject was considered under the following heads : 1. What are the microorganisms concerned in the infection of wounds, and how do they act ? 2. How are we to explain the great differences in the effects produced by pyogenic micrococci—their apparent harmlessness under some conditions, their fatal influence under others ? 3. What are the ways by which bacteria gain access to the wound ? 4. How often are bacteria to be found in wounds treated antiseptically or aseptically ? what are the characters of these bacteria, and where do they come from ? 5. What are the best means of surgical disinfection ?

The observations as to the relative frequency of ordinary pyogenic staphylococci and streptococci are not altogether concordant. The yellow staphylococcus appears to be more common in furuncles and abscesses than the white staphylococcus.

Dr. Welch had found a white staphylococcus in small stitch-abscesses and minor grades of inflammatory disturbance, in wounds treated antiseptically and aseptically, which differs in certain particulars from the staphylococcus pyogenes albus. He suggested that it be called the staphylococcus epidermidis albus. The efforts to differentiate into distinct species the pathogenic streptococci have met with little success. The list of bacilli that may be concerned in suppurative and other inflammatory affections is much longer than was formerly supposed. The bacillus coli communis furnishes an illustration of the possible predisposition to infection afforded by intestinal lesions and of the much-disputed auto-infection. Of the suppurative inflammations examined bacteriologically with negative results, may be mentioned abscesses in which the bacteria were presumably dead, several cases of pyosalpinx and suppurating buboes, and some abscesses of the liver.

There is reason to suppose that the process of suppuration serves a useful purpose and is one of the most efficient weapons employed by Nature in combating invading microorganisms. Exactly how the abscess-formation checks the invasion of bacteria we do not know.

The quantity of a culture of the staphylococcus aureus required to produce suppuration is not the same for all tissues and all parts of the body. There are also variations in virulence of different cultures of the pyogenic cocci. As it is by their toxic products that the pyogenic bacteria do injury, it is not surprising to find that it makes a great difference in the result whether or not these bacteria enter the tissues already equipped with a reserve force of poisonous material or whether they must begin the fight unarmed. This matter of toxines is possibly of great importance in understanding the potentialities of the living agents of wound-infection. The differences in virulence found to exist between inflam-

matory exudates from various sources are much greater than those observed in the cultures of the corresponding bacteria on artificial media.

In regard to the conditions in or about a wound that favor the lodgment and development of pyogenic bacteria, it may be said that anything that interferes with the integrity of the living tissues in a wound is a predisposing cause of suppuration. Chemical irritants, such as carbolic acid and corrosive sublimate, favor the development of microorganisms. A solution of corrosive sublimate as weak as 1 : 2000 gives rise to a distinct line of superficial necrosis. We are not so well informed as to the influence exerted by blood in a wound. Most surgeons lay great stress on hemostasis in surgical operations, while others advise that in certain classes of cases the wound be permitted to fill with blood-clot. Is this a source of danger ? Fresh blood-serum does not possess any such germicidal power over the pyogenic cocci as it does over typhoid and many other bacteria. The power of the living tissues to overcome a certain number of pyogenic bacteria is well recognized and the tendency of modern surgeons is to respect these tissues more and more, and not to destroy their vital capacities by the unnecessary application of strong chemical disinfectants, not to bruise them, not to make them too tense, not to strangle them, not to suffer in wounds the presence of spaces and foreign bodies that remove bacteria from the influence of the living fluids and tissues.

Of the various ways in which pathogenic bacteria gain access to wounds, that by contact with infected hands, instruments and other objects offers the greatest danger. The possibility of infection from the air cannot be ignored. Even in wounds treated aseptically or antiseptically it is not uncommon to find bacteria. The skin may have all sorts of bacteria upon it, but in addition it has its own distinctive bacteria. After the skin has been thoroughly washed and scrubbed, the prevailing organism will be found to be the white staphylococcus. This is often found in parts of the epidermis deeper than can be reached by any known means of skin-disinfection. We can now understand how, without any flaw in the antiseptic technique of the surgeon, this microorganism may be found present in wounds, and we have here an explanation of the frequent occurrence of stitch-abscesses, although the inference should not be drawn that the white staphylococcus is the only bacterium concerned in the production of these annoying complications. How much practical importance attaches to the demonstration of this coccus is not yet certain. The surgeon, with good technique, who does not bother himself about this coccus in the deeper layers of the skin, is not likely to be severely punished by the behavior of his wounds. Those who put in drainage-tubes and other extraneous substances will have to consider it. On the basis of researches on the bacteria of the skin, some surgeons have abandoned skin-sutures, the edges of the wound being brought together by subcutaneous sutures.

In regard to the methods of surgical antisepsis, it is said that the conditions for efficient chemical disinfection have been found to be far more complicated than was formerly supposed, and that wherever applicable the substitution of the simple and certain method of disinfection by heat is to be commended. For many pur-

poses in the operating-room chemical disinfectants still have their place, but their place is not in healthy wounds. Thorough scrubbing of the skin with soap and water, with a sterilized brush, removes many of the bacteria, but not all, and cannot be regarded as a satisfactory means of cutaneous disinfection. Corrosive sublimate accomplishes much less than is generally supposed. The best results obtained have been by a method in which a warm saturated solution of potassium permanganate, followed by a similar solution of oxalic acid, plays the principal disinfectant rôle. This is the procedure now adopted in the gynecological and surgical wards of the Johns Hopkins Hospital.

DR. ROSWELL PARK, of Buffalo, Co-referee, continued the discussion. The full text of his paper will appear in a future issue of *The American Journal of the Medical Sciences*.

He stated that all the sources of sepsis by no means concern the wound itself. The other principal sources of infection may be classified as follows:

1. Previous long-existent toxemia, as syphilis, diabetes, acetonemia, lithemia, alcoholism, malaria.
2. Previous anatomical changes that reduce vitality, as inherited diatheses, old age, amyloid change, chronic and acute nephritis.
3. Recent or acute toxemia, as uremia, typhoid, intestinal toxemia, stercoral toxemia.
4. Other acute conditions, as starvation, scurvy, anemia.
5. Conditions of environment, as bad hygienic surroundings.
6. Effect of anesthetics.
7. Effect of antiseptics.

Antiseptics may favor infection in more than one way. Mercurial and iodiform poisoning are not uncommon. When this is established the case becomes one of acute toxemia. The wounds may fail to unite and suppuration may occur. Again, the chemical reaction between the vital fluid and the antiseptic may cause a loss of the properties of the antiseptic agent, while the tissues on which it acts may have their constitution so changed as to favor rather than to resist infection. Investigations make it appear best to keep all antiseptic agents away from absolutely clean, fresh surfaces. The value of blood-serum as an antiseptic has been abundantly shown. This will be poured out in quantity sufficient to serve not only as a cohesive but as an antiseptic agent. The question here arises as to what is the best antiseptic. It would appear that for most purposes peroxide of hydrogen is the ideal antiseptic, as it not merely destroys living organisms but by oxidation of undesirable and infected material acts as a scavenger of the tissues. We have, however, yet to learn how to utilize to the fullest advantage the properties of blood-serum.

Direct infection may be of two varieties, self-infection or auto-infection, and contact-infection. The principal sources of contact-infection are as follows: 1. Skin and hair. 2. Instruments. 3. Sponges or their substitutes. 4. Suture materials. 5. The hands of the surgeon and his assistants. 6. Drainage material. 7. Dressing material. 8. Miscellaneous—e.g., drops of perspiration, an unclean irrigator-nozzle, the nail-brush, the clothing of the operator or bystanders, etc.

The best plan of sterilizing the skin is shaving, followed for a day or two, if there is time, by the application of some antiseptic ointment. The skin should then be washed with *sapo viridis* of the German Pharmacopoeia, containing 5 per cent. of lysol or hydro-naphthol. Then

until the time of operation there should be worn a compress wet with some liquid, non-irritating antiseptic, such as creolin or lysol (5 per cent.), or hydro-naphthol in saturated cold aqueous solution. At the time of operation there should be a final scrubbing with hydro-naphthol soap, with shaving, and then the skin washed with equal parts of alcohol and ether, or alcohol and turpentine. When there is not time for this, thorough use of the nail-brush, the razor, and antiseptic soap, with subsequent use of alcohol and ether, must suffice.

Instruments are best prepared by dry sterilization, as this injures them less than other plans. In regard to sponges, there is nothing to be added to the well-known directions. It would seem better to use some cheap absorbent material, which after use could be thrown away. Silk is best sterilized by placing it in a test-tube, plugged and kept in a steam sterilizer for two periods, each of an hour. Silkworm-gut may be prepared by immersion for a few hours in a 1 per cent. aqueous solution of corrosive sublimate and then preserving in alcohol. Catgut is best prepared by immersion in benzine or ether to remove the fat. It is then dried, and soaked for one or two days in a 1 per cent. watery solution of corrosive sublimate, after which it is dried and transferred to oil of juniper-berries, and from this to strong alcohol containing 1:1000 of sublimate. In this, if desired, it can be boiled. It may be chromicized before being placed in the oil of juniper. The hands, even after having been in contact with septic matter, may be sterilized by the following method: Wash with soap and water, using the nail-brush; then wash the hands and arms with flour of mustard as though it were powdered soap; this will remove all odor; then wash with *sapo viridis* [G. P.], to which has been added 5 per cent. of lysol, creolin, or hydro-naphthol; then rinse and immerse in a deeply colored solution of potassium permanganate; the hands are finally rinsed and immersed in a solution of oxalic acid sufficiently strong to decolorize the skin in two or three minutes; the oxalic acid is rinsed off, and the hands may be considered aseptic. Drainage is probably required only in septic or infected cases.

After an ideal aseptic operation, only a sterilized and a protective dressing is required. In some cases there may be advantage in impregnating the dressing with some antiseptic.

Among miscellaneous sources of infection may be mentioned the use of an unguent applied to the skin to prevent the adhesion of dressings. Experiments have shown that ointments made with even 10 per cent. of resorcin or naphthalin, without the application of heat, contain bacteria. The same ointments, heated to the temperature of boiling water, seem to be sterile, and to suffer only from air-contamination.

Dr. Park presented the following conclusions:

1. A study of wound-infection and of the septic condition thereby produced is inseparable from a study of what constitutes immunity.
2. By a study of immunity is furnished the best clue to a due appreciation of the principles of asepsis.
3. The surgery of the future must aim to be aseptic, for, so far as recent cases are concerned, we have passed the merely antiseptic era.
4. Asepsis is to be achieved not alone by attention to the wound and the paraphernalia of operation, but by

the closest regard to the condition of the patient's organs and tissues.

5. Sepsis may arise from circumstances and conditions other than those pertaining to the wound itself, although hitherto practitioners have been too prone to scan solely this field when searching for its cause.

6. Sepsis and infection are combated in more than one way by natural agencies and by inherent properties of cells and fluids, totally aside from the measures that the surgeon institutes, and the wisest man is he who studies to take advantage of these vital activities rather than introduce new and conflicting elements from without.

7. A recognition of the power of chemotaxis possessed by organized and unorganized materials in such varying degree, can be utilized to great advantage as soon as it can be reasonably clearly defined.

8. A study of chemotactic activity appears to impress one with the truth of the phagocyte doctrine, which if substantiated will have an important bearing upon the principles as well as the practice of the surgery of the future.

9. The proteid material contained within cellular infectious organisms plays such a rôle both in causing chemotaxis as well as in poisoning the animal infected that we have reason to eagerly welcome all knowledge concerning it.

10. As fast as such proteid material can be isolated, we need among other things to study its effect upon the commonly used antiseptic agents.

11. We need to study much further the anti-toxic and bactericidal properties of human blood-serum, and the means by which we can avail ourselves of the same.

12. Some such classification of the various causes of lowered resistance to infection as that given, or of the causes of vulnerability or susceptibility, will certainly assist in a due appreciation thereof, and will often aid in so fortifying the patient that he may resist infection to which he would otherwise succumb.

13. The condition of enterosepsis, fecal toxemia, ster-coral intoxication, or whatever it may be called, is certainly one that every practitioner has to fear and against which he should assiduously guard. It is not sufficiently generally recognized and combated.

14. A sub-form of this condition might justly be made and entitled gastrosepsis, comprising cases in which defective stomach digestion, often from dilatation, brings about a lithemic or other toxemic condition that favors infection.

15. Antiseptic agents in the past have worked a revolution in surgical practice and results. It is now time to know that they all have their disadvantages and to understand that strict asepsis will obviate the necessity of antiseptic applications.

16. The insurance of the aseptic character of such work necessitates the use of antiseptic agents of some kind upon everything that may directly or indirectly come in contact with wound-surfaces.

17. When this work is strictly aseptically performed, the use of drains, or further employment of antiseptics, is either an expression of mental uncertainty or of fear. It may be in the interest of humanity—undoubtedly it often is—but it is not attaining the ideal scientific work.

In the subsequent discussion, DR. ARTHUR T. CABOT,

of Boston, referred to the debt that practical surgeons owed to the scientific workers. It is the knowledge of how to obtain aseptic wounds that has revolutionized surgery. As to the phagocytic action of the cells, and to the germicidal action of the blood-serum, the only question is, as to which of these processes is distinctly destructive. The bactericidal action of the blood-serum has been proved. These observations may serve to explain some of the phenomena in wound-fevers. It may be that in erysipelas, the irritation set up by the application of blisters, iodine, etc., may serve to limit the spread of the disease by the action of the blood-serum on the micrococci of the disease.

In the treatment of wounds it is desirable to avoid placing animal sutures in the wound. It is better to close all spaces in the wound by pressure. Culture-experiments have demonstrated that when, prior to the operation, the skin is free from organisms, at the close of the operation their presence may be detected, showing that bacteria had been sown on the wound by the air or otherwise. If necrotic tissue or animal sutures be present, they may constitute a nidus for the development of the bacteria.

MR. THOMAS BRYANT, of London, said that if bacteria are the seed, we must remember that the soil is not of less importance. If the soil is not suitable for the growth of the seed, it will not sow. Except in a case of urgency, no surgeon would operate on a patient until the subject had been prepared for operation. In order to prevent the entrance of germs, irrigation is of service. For this purpose, iodine-water, made by adding a few drops of the tincture or solution of iodine to water, is a most valuable solution. This may be made of a light-cherry hue for clean wounds, and of a dark-cherry for dirty wounds. It also acts as a styptic. As a dressing, he uses wood-wool. The wound is dusted with iodol one part to from one to five parts of boric acid. In every operation there is a certain amount of molecular death, and drainage is required for thirty-six hours. For bringing the deeper parts of the wound in contact, pressure is better than deep sutures.

DR. HAROLD C. ERNST, of Boston, said that while it is true that nearly all forms of suppuration are attended by bacteria, yet it has been shown that a process corresponding to suppuration can be produced without the action of bacteria. The products of this suppuration, however, do not give rise to a like process when introduced into other animals. It has been shown that some of the agents used to destroy bacteria really favor their growth by diminishing the chemotactic power of the surrounding tissue-cells. Notwithstanding that laboratory experiments show the possible occurrence of chemical suppuration, it still remains to be demonstrated that the infection of wounds, as seen in practice, occurs without the influence of bacterial activity. The most important lessons taught by investigations on this subject are those that warn us that our pupilage is not yet over, and that we are but entering upon the first stage of our knowledge of the processes under discussion.

MR. JOHN CHIENE, of Edinburgh, said that he had assisted Professor Lister during the whole of his time in Edinburgh. The longer he lived the more he believed in the work of Lister and the impress that he had made on surgery. He considered bacteriological investiga-

tion as of the greatest importance, for on it the surgeon must depend in his daily work. Lister long ago spoke of the antiseptic value of the blood-clot, but John Hunter had long before pointed out the same thing. The spray is of great service. The term "integrity of the tissues" had been used, but John Hunter had also laid stress on the "vitality of tissues," which he defined as "the power of the tissues to resist putrefaction." The best results will be attained by not only improving the soil, but also by destroying the plant.

DR. ARPAD G. GERSTER, of New York, considered the many sources of contact-infection, and referred especially to infection the result of bad habits on the part of the surgeon. The surgeon may carry out all the details of aseptic and antiseptic treatment, and yet nullify all by rubbing his nose, his hair, or his face, or by placing the knife in his mouth that he might use his hand. An important point in the prevention of infection is clean dissection with the knife, without tearing or bruising the tissues. Irrigation and drainage could be eliminated only when the surgeon was absolutely certain of his asepsis; it is dangerous for the general practitioner to discard drainage. If he is not certain of his asepsis, he should cling to the older methods, and from these he may ascend to the highest degree of skill, when he can work with real asepsis.

SECOND DAY—SEPTEMBER 23D.

DR. P. S. CONNER, of Cincinnati, Referee, read a paper on "The Late Manifestations of Syphilis," which is to appear in a subsequent number of THE MEDICAL NEWS.

He stated that the early manifestations of syphilis occasioned little concern; but it can never be known in advance what the sequelæ will be. The victims of inherited syphilis suffer in greater degree and frequency from late lesions than do the cases of acquired syphilis. There is no sharply-defined line of separation between the early and the late symptoms. Speaking in a general way, the late lesions are neoplastic; the early lesions rarely so. The late lesions are not communicable. Their development is usually insidious. The bones and the nervous system are most commonly invaded. Extensively destructive and deforming bone-inflammations are almost exclusively confined to the head and the nasal regions. The explanation depends upon the exposed position of the bones, their thinness, the abundance of small vessels, and the intimate fusion of mucous membrane and periosteum. Chronic bone-disease and joint-disease in children, adolescents, and young adults are mostly tuberculous; in not a few cases, however, they are syphilitic. The most frequent and the most dangerous lesions are those of the nervous system. Affections of motion, sensation, and intellect are common in the order given. Hysteria may imitate syphilis. It is infrequent in men, while brain-syphilis is rare in women. Special lesions are not common. Exostoses may form; neoplasms may develop. There may be pain and palsy distributed in accordance with the site of the lesion. Most ataxics have had syphilis, but tabes is not of gummatous origin; nor can the sclerosis be regarded as the result of the diffused formation of fibrous tissue so often found in the cerebro-spinal axis. Antisyphilitic treatment generally fails to cure or even to retard the evolution of the symptoms.

Preexisting tuberculosis aggravates the diagnosis of

syphilis. Syphilis is not likely to be inoculated in a person with carcinoma. Carcinoma, however, not rarely invades an area in which there has long been specific thickening and induration, as in the chronic leucomata of the tongue. Occasionally a gumma becomes carcinomatous. When the disease is latent the wounds of syphilitics, as a rule, heal as promptly as in other cases; but when the specific lesions are in process of evolution, repair may be interfered with. Many cases of aneurism in persons under forty years of age depend upon syphilis. The mortality-rate from acquired syphilis is almost *nihil*. Inherited syphilis is a grave disease. Four-fifths of the pregnancies of congenital syphilitics terminate prematurely.

DR. ABNER POST, of Boston, Co-referee, followed. He considered syphilis from the standpoint of the clinician and student, and not from that of the pathologist. He called especial attention to what is known as late hereditary syphilis, in which the disease is inherited, although the symptoms first appear after a lapse of years, with symptoms corresponding to the tertiary symptoms of acquired syphilis. The later forms of acquired syphilis are not necessarily a part of the case. The so-called late lesions occur much earlier in the history of the disease than is ordinarily believed. After the third year the chances of recurrence grow steadily less. As a preventive of late symptoms, early treatment by mercurials holds first place, but by no method can a cure be assured—that is, absolute immunity from subsequent outbreaks.

Induration and enlargement of the lymphatic glands is one of the common symptoms of early syphilis. In late hereditary syphilis the lymphatic system plays a conspicuous part.

Cutaneous lesions are second in frequency to the lesions of the nervous system in late acquired disease. Syphilis differs from tuberculosis in manifesting a preference for the long bones and their shafts, while tuberculosis attacks by preference such bones as those of the wrist and ankle.

Diseases of the joints are at times undoubtedly the result of syphilis. It is fairly well-established that serious syphilitic lesions of the gastro-intestinal tract may take place. As one of the possible causes of disease of the ileo-cecal valve, syphilis must be given a certain amount of consideration. Diseases of the nervous system dependent upon congenital syphilis constitute a large field practically unexplored.

Little importance can be attached to a negative history. Many syphilitics cannot know of the existence of the disease.

The prognosis must be a matter of special consideration. It is the persistence of the damage and not the specific lesions that cause the persistence of the symptoms. There is something to be deduced in the matter of treatment. Anti-syphilitic treatment has great power over the active processes of late lesions, but is powerless to restore the tissue already destroyed. The attempt to destroy a syphilitic tertiary sore is, in general, futile. The late lesions of inherited syphilis are as readily controlled as those of the acquired disease. Large quantities of iodides may be administered. In regard to treatment of retrospective disease, too much value must not be placed upon this element in doubtful

cases, for mercurials and iodides do have some influence upon tuberculosis.

The study of syphilitic phenomena is a necessity of medical progress. The possibility of syphilis renders uncertain the diagnosis of tuberculosis and carcinoma and other forms of malignant disease. What is needed are careful clinical studies, hospitals especially devoted to syphilis, and the study of syphilis made obligatory.

The subject was further discussed by Dr. Robert T. Edes, of Washington, and Dr. James Nevins Hyde, of Chicago.

In the evening, the President of the Congress, DR. S. WEIR MITCHELL, of Philadelphia, delivered an address entitled "The History of Instrumental Precision in Medicine." He considered specialism in medicine, its virtues, and its shortcomings. He gratefully admitted the value of specialism, but he also cautioned against the perils to which the subdivisions of labor that it entailed exposed the profession of medicine. Dr. Mitchell paid a tribute to the growing usefulness of the Weather Bureau, especially in the study of meteorologic and climatologic influences upon disease and the therapeutics of disease. He made brief reference to the growing social changes by which woman is being and is about to be influenced by a masculine education, and the acceptance on her part of male standards of work and capacity. He then took up the advances that have been made in the methods of observation in disease, and confined himself especially to the earlier efforts to obtain accuracy by instruments in the study of the pulse, respiration, and temperature. Finally, Dr. Mitchell successively reviewed the stages through which the thermometer passed before it attained its present perfection, and the gradations by which the clinical significance of a study of the pulse was reached.

THIRD DAY—SEPTEMBER 24TH.

DR. A. L. LOOMIS, of New York, opened the discussion on "Fibroid Processes (Chronic Interstitial Inflammation, Scleroses); their Pathology and Etiology, with Special Reference to the Influence of Diathesis and Heredity."

He held that fibroid processes cannot be considered as degenerations, for they are active and productive. There is always an abnormally high degree of activity in those elements that develop connective tissue. The only way in which fibroid tissue can develop is from growing cellular elements. Conditions of simple preponderance of fibroid tissue from the atrophy of other elements were not included under true fibrosis. Two forms of fibrosis were described, the hyperplastic and the inflammatory. The first is due to diminished nutritive supply, to parenchymatous atrophy, to nuclear proliferation and to connective-tissue hyperplasia. Inflammatory fibrosis is due to parenchymatous degeneration, to constitutional influences and to local attraction by the products of tissue-change—positive chemotaxis.

All agencies that diminish the vital forces by which the cell appropriates to itself its proper elements tend to the production of fibrosis. These agencies may be mechanical, chemical, or mental. Direct stimulation of fibrous growth, conditions including a limited degree of nutritive supply, conditions and elements that induce perverted nutrition, either degeneration or necrosis, including mechanical forces, perverted or defective nutri-

tive supply, and toxic and trophic influences, may, any and all, cause fibrosis.

A diathesis may manifest itself by any bodily function displaying an activity out of proportion to the stimulant applied. In the fibroid diathesis, the growth of fibroid tissue is out of proportion to the degree of stimulation. Fibroid processes are not always injurious, as is seen in cases of cured tuberculosis. In seventy cases of cured tuberculosis under the observation of Dr. Loomis, fifty-four presented well-marked evidences of fibrosis. Diathesis often determines the nature or prominent action that follows a given irritant or stimulation, provided more than one is possible. It also modifies the ratio between the established process and its causes.

DR. WILLIAM OSLER, of Baltimore, considered the fibroid process under the heads of degenerative, inflammatory and developmental. The degenerative were subdivided into the atrophic, the secondary degenerations, the toxic forms, as from lead, ergot, syphilis, the scleroses associated with similar changes in the smaller arteries and capillaries. Degenerative fibrosis is the most common. Inflammatory fibrosis was subdivided into secondary forms, in consequence of reactive inflammation following hemorrhage, tumors, foreign bodies, abscess and trauma, the scleroses that follow primary encephalitis or myelitis.

The following questions were suggested for consideration:

1. What is the relation of vascular change to the degenerative scleroses? How far histologically are they mesodermal or ectodermal, or are they mixed, containing both neuroglial and collagenous connective tissue?
2. In the lobar scleroses of children, what is the nature of the primary affection? Is it inflammatory, an encephalitis or meningo-encephalitis, or is the essential lesion in the vessels?
3. Can a purely ectodermal form be recognized in developmental fibrosis?

DR. CHARLES L. DANA, of New York, then dwelt upon the chronic fibroid processes of the spinal cord, which he classed into primary degenerative, secondary degenerative, and reparative and inflammatory. The first includes locomotor ataxia, lateral sclerosis, combined scleroses, progressive muscular atrophy, and amyotrophic sclerosis. These scleroses are not inflammatory, but due to the primary destruction of cells and fibers. The causes of this degeneration were either toxic or disturbances of nutritive equilibrium by infections, vascular strain, or imperfect nutritive supply. They are not related to any special diathesis. The secondary fibroid processes have been shown to be probably neuroglial proliferations or gliosis, not a fibrosis. The inflammatory scleroses, including chronic myelitis, diffused myelitis, and transverse myelitis, are mixed processes, dependent upon a simple necrotic process, inflammatory processes, and secondary degenerations.

DR. WILLIAM T. COUNCILMAN, of Baltimore, discussed the fibroid process found in the liver, giving the results of investigations made in the Johns Hopkins Hospital. He dwelt upon the fact that the first element in the fibroid process was a necrosis. The fibrosis is not the result of stimulation. The tendency to growth is always present, and manifests itself as soon as the inhibition is removed.

AMERICAN SURGICAL ASSOCIATION.

Twelfth Annual Meeting, held at Washington, September 22, 23, 24, and 25, 1891.

FIRST DAY—SEPTEMBER 22D.

THE session was opened by DR. CLAUDIUS H. MASTIN, of Mobile, who delivered the President's Address. He expressed his appreciation of the importance of the trust that had been confided to him, and acknowledged the great honor of his position. He extended a cordial welcome to the members of the Association, together with their distinguished *confrères*. He traced the progress of the Association from its organization, eleven years previously, and paid an eloquent tribute to its founder, the late distinguished Samuel David Gross. The conception of the American Surgical Association was not in antagonism to the American Medical Association—quite the contrary. From the day on which the American Medical Association was organized Dr. Gross had been an active and influential member, once its President, often a contributor to its volume of *Transactions*. Governed by its code of ethics, he remained true and loyal to all its requirements, as evidenced by the fact that when on his deathbed he was asked by a friend what message he desired to send to the American Medical Association, he replied: "Give them my love." The last paper he wrote was being read in that Association during its session of 1884, on the same day that he died.

The first regular meeting of the American Surgical Association was held at Coney Island, and was attended by a small number of members. The second meeting was held at Philadelphia, with an attendance of twenty-five members. The third session was convened at Cincinnati, forty Fellows constituting its strength. The first volume of the *Transactions* was published subsequently to this meeting. Everything seemed to foreshadow a bright future, and nothing transpired to dim the occasion save the absolute refusal of its beloved founder and President to accept a re-election to office.

That great man, the Nestor of modern American surgery, the founder and the cherished idol of the American Surgical Association, Samuel David Gross, standing without fear and without reproach, held that he had no preëmption right to office, and contended that he had occupied it long enough. He thought that his re-election would be at variance with the genius of our republican institutions and the habits of the American people. He believed that rotation in office should be the order of the day, not only among politicians but among scientists and professional men. He felt that his highest ambition, as respected this Association, had been accomplished. He appreciated clearly that the results of the work that he had begun were exceeding his most sanguine expectations, and were surely destined to pass into history. We knew that we were losing the guiding hand of a great pilot, and we were loath to permit him to leave the helm of office to serve in the ranks. In the language of a gifted Fellow of this Association, "Had the constitution conferred upon us the power, we would have put on him the royal purple, and hailing him chief among all, have bid him wear it for life." But he was inflexible, and that meeting was the last he ever attended. Those of us who were present on the closing day of that session can never forget the trembling

words and tearful eyes when he said: "Now that I am about to retire from the discharge of these duties, I feel sure that the interests of the Association will be perfectly safe in your hands and in the hands of my distinguished successor. I have no greater ambition than to live in your affection and esteem, and to witness the ever-increasing prosperity of this Association. Its success is closely associated with the remainder of my life. I believe that we have an Association that is destined to become a power for good in the land, and when I am dead and gone you will not, I am sure, relax in your efforts to make it what its founder intended it should be—a great and lasting institution. God bless you, gentlemen, in all the relations of life! And may you ever be faithful to the interests of the profession, and the code of ethics in connection with which we have carried on our work."

Gentlemen, these were the farewell words of an old patriarch to his children, and they should sink deeply into your memories, for they were spoken by a truly great man, one of those who are "born beneath the aspect of a bright-eyed star, and whose triumphant adamantine soul is but the fixed persuasion of success."

In less than one short year from that day, he rounded up his great life and rested.

Subsequent successive and successful meetings were under the guiding hands of Moore, Briggs, Gunn, McGuire, Agnew, Cheever, and Yandell.

When this Association was first organized, anesthesia had but enlarged the domain of surgery. To-day antisepsis followed by asepsis has emboldened the surgeon to undertake and perform operations hitherto deemed impossible.

Whilst anesthesia had measurably lessened shock, antisepsis, with asepsis, has gone a step beyond, and done much toward the prevention of septic results, thus making the possibilities of surgery even greater.

In the last decade, the rapid and steady advances of the chirurgic art have far outstripped all other departments of the profession, and with the constant and seemingly never-ending improvements going on in all the branches—the discoveries in chemistry with the consequent additions to our *materia medica*; the revelations by the microscope, leading to a proper understanding of pathological lesions, and the clearing up of doubtful points in physiology, together with many new precision in the study of all the branches of medicine—have enlarged the vista before us, so that no one can predict the limitations that may not be reached in the next ten years. It was but yesterday when the closed cavities of the body were held as sacred: the organs within the abdomen; the lungs and heart within the thorax; the brain and spinal cord cased by the skull and vertebral column, were each surrounded by a dead-line that none dared to cross. To-day they have each become the legitimate field into which the surgeon has carried his knife.

Dr. Mastin suggested that a business committee be appointed to prepare and arrange the scientific work of the meetings; such a committee, duly authorized, would relieve the president and secretary of much labor and responsibility, and the work that they would accomplish would better serve the interests of the Association than if left to the will and pleasure of the presiding officer.

He also suggested that the existing limit of fellowship be increased from one hundred to one hundred and fifty, at the same time urging that all due vigilance be exercised in the admission of new Fellows, so as to maintain the present high standard of the Association; age, scientific attainments, with surgical experience and general culture, should be the necessary prerequisites for admission.

Concluding, Dr. Mastin said that it is well known to the world at large, no less than to the profession of which he was an honored member, that Samuel David Gross stood first in the foremost rank in his chosen branch of the profession, and that the high position to which American surgery has attained all over the world is largely due to his example and his teachings. Since he has passed away and his life-work has gone into history, his real worth is fully appreciated, and therefore it is that his friends and admirers have been inspired to erect a monument to his memory—such a monument as will bear testimony to their gratitude and in the future be an incentive to those who are to come after us to do like noble deeds. To further this praiseworthy enterprise, Dr. Mastin suggested that a committee be appointed to confer with the friends and admirers of Dr. Gross, and with the medical profession of the whole country, to determine the best method to be adopted to secure the requisite amount for the erection of a monument either of marble or of bronze.

Dr. Gross was probably more widely known and appreciated than any American surgeon of recent years, and when it is remembered that thousands of his pupils are scattered throughout the whole of America—men who sat under his teaching and who still retain the warmest memories of him, it is not expecting too much to feel assured of their co-operation in raising speedily and without difficulty the requisite amount for the completion of such a monument.

This work should not be done by the Association exclusively, but by the profession of the entire country, because Dr. Gross belonged to no exclusive faction, but was a member of the profession at large. The American Surgical Association, however, should take the initiative in the movement, and there will not be the least doubt as to the successful issue of the undertaking.

If any man in the profession has merited such a tribute, surely Dr. Gross was most eminently entitled to it; for he was a man "animated by fervent attachment to the science and practice of his profession, and it was the duty of his life to augment and exemplify the resources of surgery; and by most assiduous and successful application of his time and his talents, his name has become known and honored, not only in his own country, but in every land."

Appreciated and honored as he has been in life, since he is dead such a monument to his memory should be built as will bear witness in after years to the estimate in which the profession of to-day holds its distinguished members.

If asked where such a statue should be erected, the answer would be, not at Easton, in the State of Pennsylvania, the place of his birth; neither at Cincinnati nor Louisville, where he laid the foundations of his future greatness, nor even in the city of Philadelphia, where that greatness culminated in all its grandeur; but in the

city of Washington, the capital of the country which claims him as her own. His name and fame are a sacred heritage to the country at large and to the profession he loved so well, so that when the youth of the land make their pilgrimages hither they will behold the monument that their forefathers reared to commemorate the life and character of her greatest surgeon. It will teach them to emulate his example.

DR. D. HAYES AGNEW, of Philadelphia, read a paper on "The Present Status of Brain-surgery Based on the Practice of Philadelphia Surgeons." He confined himself to the work done by Philadelphia surgeons in trephining for epilepsy, traumatic and Jacksonian epilepsy, intra-cranial abscess, hemorrhage, hydrocephalus, cephalgia, microcephalus, and neoplasms.

Traumatic epilepsy. Of this condition 57 cases were recorded. Of this number, 41 recovered from the operation; 4 died; and in 12 the result is not given. 32 experienced temporary relief, 9 obtained no benefit, 4 passed out of observation, 4 were operated on too recently to permit of the result being determined, and 4 are reported cured. In 1 of the cases reported cured the patient has been free from attacks for twenty-eight months; in 2, each for ten months; in the fourth a branch of the great occipital nerve was found imprisoned in the bone-cicatrix. While the results in these cases have not been satisfactory, it by no means follows that surgery holds out no hope against epilepsy. It is not saying too much to assume that surgery is responsible for the great majority of cases of traumatic epilepsy. This statement does not by any means criminate the surgeon of earlier days. Whenever the profession can accept the doctrine that all depressed fractures, however slight the depression and entirely irrespective of pressure-symptoms, are proper subjects for trephining, then will traumatic epilepsy largely disappear from the list of surgical diseases. In view of the greatly diminished risk of trephining, it is not improbable that the operation will be extended even to cases of simple fracture or fissure of the skull.

Jacksonian epilepsy. In each of 14 cases, the discharging center was removed; 9 recovered, and 4 died. Of those that recovered, 3 had less frequent and less violent attacks; 1 realized slight benefit; 1 disappeared shortly after operation; and in 2 no benefit was observed; 1 is reported as cured, and in that case the operation was done during the present year.

Abscess. Of 18 cases of abscess 6 had had fracture of the skull; 2 had syphilitic necrosis; in 1 a foreign body had entered the brain; in 9 the abscess was due to middle-ear disease; and in 2 there had been a severe blow, without fracture of the skull. All the patients died in less than fourteen days.

Five cases of trephining for *intra-cranial traumatic hemorrhage* are recorded. In each instance the symptoms necessitating operation developed within twelve hours after the reception of the injury. Four of the five cases recovered not only from the operation but with the restoration of the suspended functions.

Of trephining for *acute* and *chronic hydrocephalus*, five cases are reported; all the cases died, one living to the forty-fifth day. As hydrocephalus is usually due to tuberculous disease or to morbid growths, it is difficult to understand on what ground such operations are undertaken.

Cephalgia. In five cases the focus of pain was referred to the neighborhood of a scar on the scalp. In four, complete relief was afforded.

Seven cases are reported in which trephining was performed for *microcephalus*. Of these four died and three recovered from the operation. One of the deaths, however, was due to scarlet fever occurring shortly after the operation. The result in the successful cases is reported as moderate improvement. From the results obtained from the education of idiots, it was thought wiser to relegate these unfortunates to special training-schools rather than to the trephine and rongeur. The debatable cases would be those accompanied with *athetosis*, in which condition some improvement might be obtained.

Brain-tumors. Only four operations for brain-tumors have been performed by Philadelphia surgeons. In one the growth was a fibroma weighing four ounces. The operation was performed by Dr. Keen, December 15, 1887, since which time the patient has had only six epileptic seizures. In the second case, also operated on by Dr. Keen, the tumor was in the occipital lobe and not removable. The patient died on the following day from shock and hemorrhage. In the third case no tumor was found. In the fourth a cyst occupying the cuneus was found and emptied; the patient died in thirty-six hours. At the autopsy a large sarcoma was found occupying the temporo-sphenoidal lobe.

The following deductions were made:

1. In view of the late after-effects, all fractures of the skull attended with depression, however slight and entirely irrespective of symptoms, should be subjected to the trephine.
2. Trephining for traumatic epilepsy at best promises only palliation.
3. Trephining for Jacksonian epilepsy is to be regarded as only affording temporary benefit.
4. In view of the fact that all such cases left alone almost invariably terminate fatally, trephining for abscess is entirely proper; the earlier such operation is done the better.
5. Trephining for intra-cranial traumatic hemorrhage is both an imperative and highly promising operation.
6. Medicinal measures having failed, trephining for cephalgia should be undertaken, with every prospect of success.
7. Trephining for hydrocephalus is a useless operation.
8. Trephining for *microcephalus*, independent of *athetosis*, confers no credit upon surgery.
9. It is more than probable that as our observations multiply, the sphere of the trephine as a preliminary for the removal of brain-tumors will be lessened rather than amplified.

In the discussion, MR. JOHN CHIENE, of Edinburgh, did not take the same somber view in regard to traumatic epilepsy as did Dr. Agnew. He referred to three cases in which decided benefit had followed operation. He fully agreed with what had been said in regard to operation in depressed fracture, whether or not symptoms be present. The cleansing of the scalp is a difficult matter, but may be accomplished by shaving and soaking with a carbolic lotion for three days. For opening the skull, he advised the gouge and mallet as safer than the trephine. For enlarging the opening the gouge-forceps fulfil a useful purpose. For puncturing the dura and the brain he uses a Graefe knife. Hemorrhage from the bone may be checked by plugging with a match-stick; bleeding from the brain by hot water. Stress was laid upon the necessity of constant observation of brain cases. In

a case of supposed injury to the head (but which later proved to be a case of apoplexy), in which the patient was in a dying condition, great improvement, eventuating in practical recovery, followed trephining.

DR. W. W. KEEN, of Philadelphia, held that every case of depressed fracture, even in young children, should be operated upon. A blow upon the head, not sufficient to cause fracture, may produce laceration of the dura or of the cortex. In regard to linear fracture, however, he was disposed not to accept the view that operation should be performed. In regard to tapping of the ventricles, he thought that further experience and an improved technique would lead to better results. In epilepsy, he suggested the use of the bromides after an operation had been performed. In many cases of brain-tumor, in which there is no hope of removing the growth, great comfort may be afforded the patient by removal of bone.

DR. CHARLES B. NANCREDE, of Ann Arbor, reported cases in which cures had followed operation for traumatic epilepsy. In one the cure was of ten years' duration. Often, cases that are reported as failures soon after the operation prove to be cures when followed for a longer time. The operation removes only one of the elements causative of epilepsy. In speaking of these operations, he stated that hemorrhage from the skull could be checked by forcing in the diploë. In regard to simple fissured fracture, he asked how the diagnosis could be made.

DR. ROSWELL PARK, of Buffalo, differed from Dr. Agnew as regards the results of operation for epilepsy. He had himself had cases in which decided benefit was afforded. In order to determine the effect, time must elapse so that the epileptic habit may disappear. The operation removes the anatomic cause, but ordinary therapeutic measures are needed to counteract the secondary conditions. Reference was also made to the relief afforded in brain-tumors, even when the removal of the growth was not contemplated. He reported two cases of craniotomy for *microcephalus* in which benefit had followed.

DR. H. C. WOOD, of Philadelphia, thought it well to wait before coming to any conclusions as to the results of treatment, either medicinal or surgical. He referred to one case in which, under medicinal treatment, the attacks remained absent for seven years and then returned. In these cases he advised that before the contemplated operation was performed, a mock operation should be done and the effect noted. He cited cases in which such measures had been followed by benefit.

DR. J. J. PUTNAM, of Boston, thought that a simple, smooth, depressed fracture would not be likely to cause any symptoms. The irritation from a sharp spicule of bone would probably cause irritation. Probably the most important element in the causation of trouble is the result of the original injury to the cortex. The interstitial changes in the cortex take the form of sclerosis, and it seems, *a priori*, doubtful that the removal of the bone would materially affect the condition. The operation may not prove indifferent, for the cicatrization of the incised wound may lead to harm.

MR. THOMAS BRYANT, of London, had been much struck by the emphasis with which Dr. Agnew had insisted upon the treatment to be followed in depressed

fractures. As a practical rule, he was disposed to agree with him, but there are certain exceptions. He did not think it wise to encourage the practitioner to trephine and elevate in every case of depressed fracture. He could recall many cases of depressed fracture, followed for years, in which no symptoms appeared. Depression of the lateral surfaces of the skull are not so apt to be followed by symptoms as depression of the vault of the skull. From these remarks, he said, it would naturally follow that he disagreed with the observation that in every case of fissure of the skull operation should be performed. He wished Dr. Agnew had gone more thoroughly into the reason for this statement. If there have been no brain symptoms, although the blow may have been sufficient to cause fracture, it would not be wise to insist that we should at once proceed to explore, to see if there is fracture. It is better to wait and watch for symptoms, being ready to operate as soon as there is a suggestion of something wrong. Although the risk of exploratory operation may be slight, yet it must be admitted that such operation is attended with some danger.

In conclusion, DR. AGNEW said that in traumatic epilepsy he did not condemn operation, but curative results should not be expected from it. Its result is only one of amelioration. He could not withdraw his statement made in the paper, for in many of the cases of traumatic epilepsy there had been no history of unconsciousness or other symptoms; there had been a blow on the head and many years later epilepsy appeared. It is impossible to determine the condition of the internal table of the skull by inspection of the external table. He had seen a simple crack in the skull with the internal plate forced some distance downward.

A paper on "Resection of the Wrist," by DR. RAFAEL LAVISTA, of the City of Mexico, was presented and read by title.

DR. STEPHEN SMITH, of New York, presented the Report of the Committee on the Results that Should be Considered as Satisfactory, of Treatment of Fractures of the Shaft of the Femur, which is elsewhere published in the current number of *THE MEDICAL NEWS*.

SECOND DAY—SEPTEMBER 23D.

DR. A. G. GERSTER, of New York, read a paper on "Aseptic and Antiseptic Details in Surgery," the full text of which is to appear in *The American Journal of the Medical Sciences*. He stated that personal cleanliness, and cleansing of the field of operation, are to be accomplished by mechanical measures rather than by disinfectants. The dirt and oily matter of the skin are removed by emollient potash-soap and a stiff brush. Then a germicidal lotion is applied. The hands of the surgeon may be sterilized by first trimming the nails short, then for one minute scrubbing the hands with soap, brush, and hot water. The nails are then cleaned, and the hands immersed in strong alcohol, and then washed in 1:1000 corrosive sublimate solution. Brushes require careful attention. They may be sterilized by boiling for five minutes in water containing one per cent. of washing soda. They should be kept in 1:1000 bichloride solution. Instruments are sterilized by boiling for five minutes in a soda solution, in a covered vessel. The addition of the soda prevents

the formation of rust. Dressings are rendered absorbent and sterilized by steam. Strong antiseptic agents in dressings are objectionable from their action on the skin. Dressings may also be sterilized by boiling in soda-lye or potash-lye. The use of Florida sponges was recommended, for, owing to their cheapness, they can be used once and then thrown away. Boiling of sponges is to be condemned; sponges are best prepared by beating, followed by immersion in dilute hydrochloric acid. The acid is removed by washing. The sponges are then immersed in water for ten days, to permit the spores to germinate. Each sponge is then kneaded in hot water for one minute, with potash-soap or soft soap, and then, for twenty-four hours, placed in a five per cent. carbolic solution. As a substitute for the large flat sponges used in laparotomy, Dr. Gerster recommended the substitution of pads of absorbent gauze.

In operating, as few instruments, sponges, and assistants as possible should be employed. The dissection should be clean, the tissues cut rather than torn. Irrigation should not be employed except when special indications are present. Irrigation of the abdominal cavity was condemned. When the peritoneal cavity is contaminated by pus, simply wiping away the matter is sufficient.

In perfectly aseptic operations, no drainage is required. Iodoform gauze can often be substituted for tubes. Drainage by tubes is required when there is progressive suppuration.

In combating septic morbid processes, mechanical measures, such as incision, drainage and irrigation, are of more importance than chemical measures.

In the discussion that followed, DR. J. COLLINS WARREN, of Boston, described the details of operative surgery as practised in the Boston City Hospital, the Massachusetts General Hospital and the Children's Hospital, of Boston.

DR. J. WILLIAM WHITE, of Philadelphia, expressed the view that the time had not yet arrived when the use of antiseptics could be dispensed with. He preferred an antiseptic dressing in all cases except when the wound is absolutely sterile and when no discharge is to be expected. While, in a general way, he agreed as to the value of mechanical measures in cleansing the skin, he saw no good reason for entirely throwing aside the use of the weaker chemical solutions. There are so many cases in which one cannot be sure that the wound is aseptic that antiseptic dressings become of importance. He had tried gauze as a substitute for sponges in abdominal work, but had found it objectionable from the fact that when the gauze remains long in contact with the intestines threads of gauze adhere to the intestine.

DR. JOSEPH RANSOHOFF, of Cincinnati, stated that in some cases it was absolutely impossible to render a part aseptic. In cases in which it becomes clear that the wound is infected, he removes the dressings and soaks the part in hot water. He had discarded the use of sponges altogether. In the majority of cases he employs the aseptic dressing, but could see no harm in the use of antiseptic dressings. In private practice, dressings may well be sterilized by heating in the oven. He thought that tight closing of the wound should be practised oftener than it now is. Drainage is rarely used except in wounds already septic. He often uses

catgut for drainage. In the septic cases, he thought that probably the surgeon was often responsible for the infection of the wound. By clean incisions, cutting far away from the disease, and by not using the sharp spoon too freely, infection of the wound in suppurating cases can often be prevented.

DR. E. M. MOORE, of Rochester, inquired as to the objections to irrigation. In amputation, for instance, irrigation with 1:1000 bichloride solution affords a ready means of removing clots, leaving the wound dry. If irrigation does no harm, why not use it? Dr. Gerster had condemned it, but he had failed to give reasons for such condemnation. In certain cases of abdominal section, especially when there was oozing of blood, the irrigations of hot aseptic water were of great service.

DR. GERSTER, in concluding, said that he did not condemn antiseptic methods. He employed both aseptic and antiseptic methods. In its proper place, asepticism is infinitely superior to antisepticism; but the cases must be properly selected. Teachers must be careful not to go too far in advance of the rest of the profession. Those who have not learned the details should be warned to adhere to the older methods, gradually approaching the higher.

DR. J. WILLIAM WHITE, of Philadelphia, read a paper on "The Surgery of the Spine." He considered congenital deformities, tuberculosis of the spine, neoplasms and traumas. Under the first head, spina bifida was the only condition requiring consideration. In this, injection of an iodo-glycerin solution offers the greatest prospect of ultimate recovery, with the least immediate danger. In tuberculosis of the spine, the indications for interference are the evacuation of pus, removal of a sequestrum or of a focus of carious bone, and relief of pressure on the cord. Fourteen operations upon the bodies of the vertebrae are on record, with eight cures; five cases improved, and one death from causes distinct from the operation. There have been forty cases of operation on the spine for the relief of pressure. In twenty-two there was either improvement or cure. The effect of suspension in the treatment of Pott's paralysis has been so favorable that it should occupy a preëminent position.

Dr. White formulated the following conclusions in regard to the operative treatment of spinal tuberculosis, with symptoms of pressure on the cord:

1. In Pott's disease the paralysis is not, as a rule, due to transverse myelitis or hopeless degeneration, and usually not to the pressure of carious or displaced vertebrae, but in the majority of cases is the result of an external pachymeningitis that gives rise to the formation of an extra-dural connective-tissue tumor.

2. Speaking generally, a favorable prognosis is to be given, especially in children, in cases of Pott's paralysis in which the abscess (if any exists) can be evacuated; the treatment by extension and with plaster-jackets can be employed, and the patient placed under the most favorable hygienic conditions.

3. In cases in which other measures have failed, in which the disease is slowly but steadily progressive, with loss of motion and sensation below the level of the lesion, with incontinence of urine and feces, and the development of bedsores, and especially when acute symptoms threaten life, resection becomes entirely justifiable.

4. Operation having been decided upon, the prognosis will be favorable in direct proportion to the youth and strength of the patient, the non-involvement of vital parts, and the absence of generalized tuberculosis.

5. When the tuberculous process affects the arches and there is paraplegia, operation may be undertaken in the hope of not only freeing the cord, but at the same time removing the focus of disease. This double indication may also be fulfilled in cases in which, without bone-disease, there is posterior pachymeningitis or a tuberculoma occupying the spinal canal.

6. If the lesion of the bodies of the vertebrae is in the lumbar region, at a point where these bodies are accessible, it might in certain cases be possible to expose the cord from the back by removing the laminae, with the object not only of relieving pressure but of reaching and taking away the diseased bone and tuberculous granulation.

7. In tuberculosis of the body of a vertebra and compression of the cord by anterior pachymeningitis, only one indication can be fulfilled—to liberate the cord from pressure. In grave cases, operation should be undertaken only when acute compression, the appearance of respiratory complications, the rapid development of degenerative processes urgently indicate interference, or when the course of a chronic case is steadily progressive toward a fatal termination, although no advanced visceral tuberculous lesions are present.

In regard to neoplasms it was stated that every case of focal spinal lesion, thought to be dependent on a tumor and not distinctly malignant and generalized, should be regarded as amenable to operative interference, no matter how marked or how long-continued the symptoms of pressure may be. The indications and contra-indications for trephining in spinal fractures are based on the following points: 1. The nature of the vertebral lesion and the nature and extent of the medullary lesion. 2. The time that has elapsed since the traumatism. 3. The regional level of the medullary lesion.

The following conclusions were presented:

1. Some objections urged against operative interference in spinal traumas—*i. e.*, hemorrhage, frequency of absolute destruction of the cord, pressure from inaccessible fragments of bone, etc.—have been shown to be unsupported by clinical facts; others were largely due to a well-founded dread of (*a*) the shock in those cases operated on in pre-anesthetic times, and (*b*) consecutive inflammation, suppuration, and pyemia in pre-antiseptic periods.

2. Some results of recent operative interference in properly selected cases of fractures of the spine are encouraging, and should lead to the more frequent employment of resection of the posterior arches and laminae: (*a*) in all cases in which depression of those portions either from fracture or dislocation is obvious; (*b*) in some cases in which, after fracture, rapidly progressive degenerative changes manifest themselves; (*c*) in all cases in which there is compression of the cauda equina from any cause, whether from anterior or posterior fracture, or from cicatricial tissue; (*d*) in the presence of characteristic symptoms of spinal hemorrhage, intra-medullary or extra-medullary.

3. Operation is contra-indicated by a history of such severe crushing force as would be likely to cause dis-

organization of the cord. The question that will remain in doubt previously to operation will usually be that of the extent of damage done to the cord and the possibility of its taking on a reparative action. As to this, the safest rule is that which has been formulated by Lauenstein, namely, that if, after the lapse of from six to ten weeks, there is incontinence of urine or incontinence of feces, and especially if extensive bedsores develop, but little is to be hoped for from the unaided efforts of Nature. If, however, these symptoms are absent, and if there be the least improvement, it will be proper for the surgeon still longer to delay operative interference.

In the discussion that followed, DR. H. H. MUDD, of St. Louis, dwelt upon the importance of remembering the likelihood of severe shock in these spinal operations. He reported three cases of bullet-wounds of the spinal column, one of which ended fatally.

DR. JOHN B. ROBERTS, of Philadelphia, insisted that injuries and diseases of the spine of a surgical kind should be treated as injuries of the cranial cavity are treated. Cases of Pott's disease with angular curvature have been referred to, but sufficient stress has not been laid upon the fact that many of these cases with motor paralyses improve under ordinary remedies, the inflammatory exudation being absorbed. In case of traumatism the spine should be explored as the brain is explored. In severe injuries, with fracture, spicules of bone are often driven down upon the cord.

DR. J. J. PUTNAM, of Boston, feared that the dangers of inflammation had not been sufficiently dwelt upon. After from one to four years some cases of spinal injury show some improvement. In such cases an operation may add to the improvement.

DR. JAMES McCANN reported two cases of spinal injury in which operation had been performed. In one, death followed. In the other there was great improvement.

DR. N. SENN, of Chicago, presented the following conclusions upon "The Treatment of Tuberculosis of Bones and Joints by Parenchymatous and Intra-articular Injections."

1. Parenchymatous and intra-articular injections of safe anti-bacillary substances are indicated in all subcutaneous tuberculous lesions of bones and joints accessible to this mode of treatment.

2. Of all the substances so far employed in this method of treatment, iodoform has yielded the best results.

3. The curative effect of iodoform in the treatment of local tuberculosis is due to its anti-bacillary influence, and its stimulating action on the healthy tissue adjacent to the tuberculous focus.

4. A 10 per cent. emulsion in glycerin or pure olive oil is the best form in which to administer iodoform subcutaneously.

5. The ethereal solution should never be employed, as it is liable to cause iodoform intoxication, or necrosis of the tissues overlying the abscess.

6. Tuberculous abscesses and joints containing synovial fluid or tuberculous pus should always be thoroughly washed out with a 3, 4 or 5 per cent. solution of boric acid before the injection is made.

7. Injections should be made at intervals of one or two weeks, and their use persisted in until the indications

point to the cessation of the tuberculous inflammation and the substitution for it of a satisfactory process of repair, or until the result of this treatment has shown its ineffectiveness and indications of the necessity of resorting to operative interference present themselves.

8. If the treatment promises to be successful, symptoms pointing to improvement manifest themselves not later than after the second or third injection.

9. In tuberculous empyema of joints, and in tuberculous abscess, gradual diminution of the contents of the joint-abscess at each successive tapping, with a lessening of the solids contained in the fluid, and increase in its viscosity, are the conditions that unerringly indicate that the injections are proving useful, and that in all probability a cure will result from their further use.

10. Moderate use of a limb is compatible with this method of treatment, provided the disease has not resulted in deformities that would be aggravated by further use of the limb. In such cases, correction of the deformity should be postponed until the primary joint affection has been cured by the injections.

11. Parenchymatous and intra-articular medication, with anti-bacillary material, has yielded the best results in tuberculous spondylitis attended by abscess-formation and tuberculosi of the knee-joint and wrist-joint.

12. This mode of treatment may prove successful in primary osseous tuberculosis, followed by involvement of the joint, provided the osseous foci are small.

13. Extensive sequestra of articular ends, with secondary tuberculous synovitis, always necessitate resection, but preliminary treatment with iodoform injection into the affected joints, constitutes a valuable procedure preparatory to the operation, and adds to the certainty of a favorable result.

14. In open tuberculous affections of joints, incision, scraping, disinfection, iodoformization, iodoform-gauze tampon, suturing, and subsequent injection of iodoform emulsion are advised, and yield excellent results. They should be employed in all cases in which a more formidable operation can be avoided.

15. Balsam of Peru ranks next to iodoform in the treatment of tuberculous affections of bones and joints. If for any reason iodoform cannot be employed, or has failed in effecting the desired result, balsam of Peru should be given a fair trial, if operative treatment is not urgently indicated.

THIRD DAY—SEPTEMBER 24TH.

At the Executive Session the following officers were elected for the ensuing year:

President.—Dr. Phineas S. Conner, of Cincinnati.

Vice-Presidents.—Dr. L. McLane Tiffany, of Baltimore; Dr. Levi C. Lane, of San Francisco.

Secretary.—Dr. J. R. Weist, of Richmond, Ind.

Recorder.—Dr. J. Ewing Mears, of Philadelphia.

Treasurer.—Dr. John B. Roberts, of Philadelphia.

Member of Council.—Dr. Claudius H. Mastin, of Mobile.

The following resolution was adopted: *Resolved*, That the Association hereafter hold each triennial meeting at Washington, and that other annual meetings be held at such time and place as the Association may name.

It was decided to hold the next meeting in Boston, in June, 1892.

The following were elected to membership:

Dr. J. S. Wight, of Brooklyn; Dr. E. W. Walker, of Cincinnati; Dr. George R. Fowler, of Brooklyn.

The following honorary members were elected:

Mr. John Chiene, of Edinburgh; Mr. Reginald Harrison, of London; Mr. Thomas Bryant, of London; Mr. Arthur Edward Durham, of London.

DR. FREDERIC S. DENNIS, of New York, read a paper on "Recurrence of Cancer of the Breast." In all the cases considered a microscopical examination of the tumor had been made. Carcinoma is a disease of civilization. Seven thousand deaths occur annually in England from carcinoma, the breast being most commonly involved. In 75 per cent. of cases recurrence follows operation, including operations in which the axilla has not been opened. The primary neoplasm is local. Early and complete removal of the growth relieves the local disease, but does not overcome the predisposition or susceptibility or the capability of recurrence.

1. The recurrence of carcinoma of the breast is influenced by the interval of time between the appearance of the growth and the operation. The best results are obtained when the operation is performed early, particularly before involvement of adjacent glands has taken place.

2. Recurrence is influenced by the extent of secondary involvement, either by the blood-stream, by the lymphatics or by contiguity of structure.

3. Recurrence is influenced by the character of the operation. Complete removal of the breast is essential for permanent cure. Not only the breast, but the adjacent glands as well must be removed. In the seventy-one cases of Dr. Dennis there was but one death, and that was from hemorrhage in a case of hemophilia.

4. Recurrence is influenced by the histological character of the growth. The less typical the growth, the more unfavorable the prognosis. The more embryonic the structure, the greater the chance of recurrence.

5. Recurrence is influenced by the condition of the second breast. This is involved in 5 per cent. of cases. In these patients recurrence is likely.

6. Recurrence is influenced by the personal equation, including age, sex, marriage, fecundity, sterility, pregnancy, traumatism, heredity, menstruation, metastasis, mental condition, locality, etc.

In nearly all of the seventy-one cases reported, the axilla was opened, the entire breast was removed, together with all contiguous skin, the para-mammary and peri-mammary fatty areolar tissue, the pectoral glands, the pectoral fascia and the axillary glands and axillary fatty tissue. In some cases the supra-clavicular glands were removed, and in one case a number of the ribs were excised. The percentage of permanent cures reached 30 per cent.

Dr. Dennis held that with early and radical operation, recurrence of carcinoma of the breast should be comparatively rare.

MR. THOMAS BRYANT, of London, believed firmly in the local origin of carcinoma, although it must be admitted that there may be a predisposition to the development of the disease. Many cases do not come under observation until the disease is well advanced, because the patient imagines that a condition unassociated with pain cannot be carcinoma. When induration appears

in a breast during the period of functional activity, there may be some hesitation in the diagnosis, but in some thirty cases of this kind in which immediate operation was performed, the disease was shown to have been malignant. In none has recurrence taken place. When the disease has advanced somewhat further, with dimpling and puckering of the skin and some immobility, a thorough operation may accomplish good results. In some cases there is no recurrence for from five to twenty years. In the more advanced cases the surgeon should limit his operations to those in which there is a reasonable prospect of removing all of the diseased structure. Mr. Bryant does not remove the axillary glands in every case. If the glands are enlarged or the disease extends toward the axilla he thoroughly removes the glands. If the disease is quite local and there is no evidence of axillary involvement, the axilla is not opened. In the atrophic form of carcinoma he thought it better not to interfere, unless the tumor was a source of great inconvenience. In these cases operation is often followed by a more rapid form of growth. Again, in cases of carcinoma in which the lymphatics can be traced distinctly and the breast has a brawny feel—the lymphatic form of carcinoma—the surgeon does no good by interference.

SIR WILLIAM MACCORMAC, of London, thought that the axilla should always be opened in operations for carcinoma of the breast, for two reasons, viz.: (1) In 117 cases of carcinoma of the breast, examination showed that in all but 2 the axilla was involved; (2) In 90 per cent. of the recurrences the disease appears in the axilla.

DR. LEWIS S. PILCHER, of Brooklyn, thought that the term "recurrence" was not applicable to many of these cases, as the condition was simply one of continuance of the former growth. If a case goes for a year without the appearance of the disease, it may be considered that the disease has been removed; if it appears later, it can be regarded as recurrent, a renewed or a new attack of carcinoma. As in every case of carcinoma there is a predisposition to the disease, in addition to operative measures an agent should be sought to counteract this constitutional predisposition. Arsenic has, for many years, been used for this purpose. Dr. Wight, of Brooklyn, has suggested the use of carbonate of lime for the same purpose.

DR. L. McLANE TIFFANY, of Baltimore, did not think that any limit could be set to the time at which recurrence might take place. He had seen the disease return eight years after operation. He firmly believes in the local origin of carcinoma. The time at which the disease is discovered by the patient bears no relation to the time of its commencement. Too much stress cannot be laid on the necessity for thorough operation. In only two cases, of eighty operations for cancer of the breast, had he found the axillary glands not enlarged. The pectoral fascia and at times portions of the muscle should be removed.

DR. KINGSTON, of Montreal, believed that carcinoma was essentially a local disease. Believing this, operation should be performed at as early a date as possible. The glands should be removed not only from the axilla, but if they are enlarged also from its neighborhood. If there should be recurrence the operation should be repeated as often as circumstances seem to warrant.

DR. JOSEPH RANSOHOFF, of Cincinnati, reported thirty

cases of removal of the breast for carcinoma, without a death. He thought that the danger of the operation was not materially increased by opening the axilla.

DR. C. B. NANCREDE, of Ann Arbor, said, with reference to the three-year limit, that this had been proved to exclude ninety-eight per cent. of the recurrences. It is impossible to tell whether or not the axillary glands are involved without opening the axilla. Unless this is done the majority of cases will be left unbefited. He advised that the axilla be opened first, and if the glands could not be removed, to close the wound and not remove the breast.

DR. J. R. WEIST, of Richmond, Ind., had operated fifty-five times for carcinoma of the breast, and makes it a rule to open the axilla in every case.

DR. GEORGE W. GAY, of Boston, would not admit the local origin of carcinoma. When it can be shown that a carcinoma, once removed, will not return, just as a fatty tumor when removed does not return, then the local origin of carcinoma can be accepted.

DR. EDWARD M. MOORE, of Rochester, always operates in as thorough a manner as possible. He always opens the axilla, and does not think that he thereby adds to the risks of the operation. He did not agree with Mr. Bryant in regard to the atrophic cases in old individuals. In these he recommended operation, considering recurrence very improbable. He reported one case, now seventy-nine years of age, living seventeen years after the operation.

DR. C. B. PORTER, of Boston, reported "A Case of Diffuse Fibroma with a Tendency to Intra-canicular Growth of Both Breasts," in which for three years the breasts had undergone gradual enlargement, the increase in the last three months, however, being rapid. The greatest circumference of the right breast was 38 inches; the length from the chest-wall to the nipple, 17 inches; the circumference of the base, 23 inches. The greatest circumference of the left breast was 28 inches; the length from the chest-wall to the nipple, 14 inches; the circumference at the base, 23 inches. Throughout both breasts were felt hard, movable masses of irregular outline, varying in size from an orange to a closed fist. The left breast was first removed. It was transfixed at the base with two skewers and constricted below this by means of a tightly-drawn rubber tourniquet. But little blood was lost. Three weeks later, the right breast was removed. Twenty days after the second operation the patient was permitted to leave the hospital. A week later she developed erysipelas. This had improved in four days, when she suddenly aborted a four-months' fetus.

The weight of the right breast after removal was 43 pounds and that of the left 17 pounds.

DR. J. M. BARTON, of Philadelphia, reported a similar case, in which only one breast was removed.

(To be continued.)

AMERICAN GYNECOLOGICAL SOCIETY.

*Sixteenth Annual Meeting, held at Washington,
September 22, 23, and 24, 1891.*

FIRST DAY—SEPTEMBER 22D.

DR. JOSEPH TABER JOHNSON, of Washington, delivered an Address of Welcome.

The first paper was presented by DR. JOHN C. REEVE,

of Dayton, Ohio, on "The Advantages of Mixed Narcosis in Gynecological Surgery." There are special features of many operations of gynecology, abdominal and plastic, that require the most profound and uninterrupted anesthesia for their successful performance. This condition is assured by the hypodermatic injection of morphine and atropine before the inhalation. For more than twenty years Dr. Reeve has resorted to this procedure in every operation of notable duration or severity.

The advantages of the method consist in the facility of production of anesthesia; steadiness of its maintenance; profoundness; and diminution of struggling in the early stages, and of vomiting afterward.

The great point in artificial anesthesia is danger. The speaker adduced the points in support of the superior safety of the mixed method: 1. The emotional state is nearly abolished by the narcotics. 2. A much smaller quantity of the anesthetic is required. 3. A shortened and diminished struggling stage. 4. The stimulating influence of atropine upon cardiac action and respiration. 5. The effect of morphine in lessening reflex inhibition. 6. Experiments upon animals.

Finally, the question of the combination of the narcotics with ether was considered, since almost all experience had been with chloroform as the anesthetic. The speaker had exclusively used the A. C. E. mixture, which is one-half ether. His experience with the method had been unbroken by accident or by threatening of danger. He had used it in one patient that under a previous administration had the narrowest escape he ever saw under anesthetics, and there were no disturbing symptoms.

In none of the few cases in which death had occurred was this sudden and typical of death under anesthetics. In every instance the fatal termination took place some hours after the administration.

DR. WARREN SAWYER, of Chicago, stated that he had found mixed narcosis valuable in preparing patients for the application of the forceps, or other minor obstetrical procedure.

DR. J. M. BALDY, of Philadelphia, stated that he had employed mixed narcosis, with ether as the anesthetic, but when he could have full personal control of the preparation of the patient for operation he had not found any essential difference between simple and mixed narcosis. He believed that most of the struggling of the patient during the anesthesia was due to gastro-intestinal irritation, and when he had cleared out the gastro-intestinal tract prior to the operation, the patient had remained just as passive as in the cases in which he had used mixed narcosis. He had seldom seen vomiting after ether-narcosis.

DR. WILLIAM T. HOWARD, of Baltimore, was strongly in favor of ether as an anesthetic because it took a much smaller amount to anesthetize a patient and the struggling was less. He believed that, although ether caused less nausea than chloroform, neither secured immunity from vomiting, and he was glad to hear of the good results of mixed narcosis.

DR. JOHN BYRNE, of Brooklyn, had used mixed narcosis for many years, with ether as the anesthetic, and believed that all the good effects claimed by Dr. Reeve could be obtained as well when ether was used as the anesthetic, instead of the A. C. E. mixture.

DR. HENRY C. COE, of New York, read a paper entitled "Accidental Hemorrhage occurring During the First Stage of Labor, at Term." He considered only the hemorrhage occurring during labor. This is not only the more infrequent but the more fatal form, and is rarely of traumatic origin.

The etiology of these cases is obscure: traumatism is the most frequent factor before labor; the predisposing causes are a hemorrhagic diathesis, general febrile affections, renal troubles, death of the fetus, hydramnios, and diseases of the placenta. Irregular uterine contractions have been noticed in 20 per cent. of cases. In a certain number of cases the cause was undoubtedly abnormal shortness or twisting of the cord. In non-traumatic cases the accident cannot be ascribed to a single etiological factor; there is usually a combination of several. It is impossible in a given case to predict what combination may lead to hemorrhage.

There are two sets of symptoms—initial and final. Most writers affirm that the latter are alone reliable and are recognized too late for successful interference. Dr. Coe believes that it is possible to diognosticate accidental hemorrhage at its inception by careful attention to the initial phenomena, especially irregularity and feebleness of the labor-pains. Sometimes the pains are strong and then die away; in many cases they are feeble from the outset. The patient complains of continuous pain in the lower part of the abdomen, which gradually grows worse and assumes a rending character. External palpation may at first reveal nothing abnormal; auscultation of the fetal heart shows it to be feeble and irregular. The patient may be restless and irritable, but able to sit up and walk about; her pulse is not affected, so that the ordinary observer may mistake the case for one of simple uterine inertia. External bleeding has been absent in three-fourths of the cases reported. Its occurrence should be regarded as a confirmation of a diagnosis already made. The patient's pulse and general appearance now indicate internal hemorrhage; the labor is entirely arrested; she grows weaker, collapses, and may die; or, after rupture of the membranes, strong pains may come on and the woman may be delivered, only to succumb to post-partum hemorrhage, if not to shock. In not a few instances death seems to be due to over-distention of the uterus rather than to actual loss of blood.

The condition might be mistaken for a severe attack of colic, but hardly if the condition of the uterus was carefully observed. It is distinguished from rupture of the uterus by the fact that rupture occurs during the progress of active pains, usually before the rupture of the membranes, and is followed by a diminution rather than an increase in the size of the uterus, by recession of the presenting part, and by the sudden onset of the symptoms of internal hemorrhage. In case of uterine atony dependent upon hydramnios, a quantity of liquor amnii escapes when the presenting part is returned.

The prognosis is dubious; it varies according to the time at which the accident is recognized, the degree of shock, and the character of the labor-pains. The child is likely to be lost. If the pains are fairly strong, the uterus not over-distended, the cervix dilatable and the head engaged, the patient ought to be saved. If she is in collapse, the uterus distended and absolutely inactive, and the cervix is rigid, so that time is lost in dilating it,

the outlook is bad. When delivery is effected there is great danger of post-partum hemorrhage, which may destroy the patient, already exhausted.

There is a want of unanimity with regard to the management of these cases. Some advise an immediate delivery; others, delay. Dr. Coe disapproved of the practice of rupturing the membranes and administering ergot when there was no prospect of immediate delivery. It might cause the uterus to contract, but it did not overcome the obstacle to delivery, and might be a cause of a continuation of the hemorrhage. Dr. Coe's plan of treatment was as follows: As soon as the accident was recognized, the patient is vigorously stimulated by mouth, rectum, and hypodermically, and assistance sent for. Under complete ether-anesthesia the os should be carefully dilated manually, Barnes's bags only being employed when the os is rigid and the patient's condition such that a certain amount of delay could be safely permitted; the membranes should be preserved intact; then version should be performed, with unusual care to avoid rough manipulation. At this stage ergot should be freely administered hypodermically. There should be a short delay before extraction in order to give the uterus time to recover its tone.

If the head is arrested by the poorly-dilated os, it should be perforated instead of wasting time in trying to drag it out. The most important step is the prevention of post-partum hemorrhage. Instead of losing time by employing the ordinary agents, ice, hot water, astringents, electricity, etc., the hand should be introduced into the uterus, the placenta and clots removed, and the cavity at once tamponned with iodoform gauze. This will promptly arrest the hemorrhage, even if the uterus does not contract.

DR. EDWARD W. JENKS, of Detroit, presented a paper entitled, "The Therapeutic Aspect of Some Ovarian Disorders." He stated that, notwithstanding the brilliant achievements of abdominal surgery within the past few years and the large percentage of recoveries after successful operations on the ovaries and Fallopian tubes, there remains a dark spot on the face of perfection. Unfortunately, to operate and to cure have not ever been synonymous terms. There are, undoubtedly, many fatal cases of laparotomy of which, not being published, the medical world has no knowledge. There are also many instances of recovery from operations in which the patient is not benefited in the least.

Dr. Jenks entered a strong protest against the wholesale removal of ovaries by everyone considering himself capable of wielding a knife or tying a ligature. Operation for the relief of pain and for mental disorders, in anemic, neurasthenic and hysterical women frequently fails to accomplish the object sought for.

Upon the statements of many laparotomists it can be safely said that ovaries and tubes have been removed for pain or other symptoms when neither macroscopic nor microscopic examination indicated any diseased condition, and the patient was restored to health in consequence.

A simple catarrh of any mucous tract in the body, if neglected, often advances to the purulent stage, and Dr. Jenks had no doubt that in not a few cases operated upon in which pus was found in the tubes, the fluid was simply a slightly muco-purulent secretion, the result of

an undiscovered or neglected catarrhal salpingitis, which, in its earlier stages, would have been amenable to treatment by ordinary therapeutic measures. The fearful frequency of gonorrhreal salpingitis has caused many to overlook the fact that there is any other variety.

While Dr. Jenks fully appreciated the feats of abdominal surgery, he believed it finer science to restore an organ to moderate usefulness and comfort than to remove the offender; but if treatment by ordinary therapeutic means could not bring about the necessary repair, then he would remove the organ without delay. He believed that some of these cases had a malarial origin, and he had accordingly treated some of them with success.

Contrasting the rich and the poor, there is in these cases an exception as regards women of the poorest class. They cannot afford a long period of semi-invalidism. They do not complain of sterility, as they generally have more children than they can take care of. The quickest possible amelioration of their troubles is the thing desired; therefore an operation should be performed at once after it has been decided that the tubes and ovaries are hopelessly diseased. On the other hand, in the case of the rich, who can afford to wait, time and judicious treatment will often bring about the desired result. The uterine sedatives, such as viburnum, piscidia, apioi, some of the coal-tar preparations, bromides, etc., are serviceable in quite a variety of conditions. Electricity is valuable as a general nerve-tonic for the relief of pain, and the dissolution of pelvic exudates and adhesions. Local treatment consists in painting the entire vaginal vault with a saturated solution of tincture of iodine, and keeping up continuous pressure by means of wool tampons.

DR. J. M. BALDY, of Philadelphia, presented a paper entitled, "Insanity Following Gynecological Operations." A careful inquiry from the heads of eight hospitals for the insane throughout the country, as to whether any female patients were admitted during the past five years on whom laparotomy was performed and insanity followed, resulted in the following: Of a total of 15 cases, there was in 11 preexisting insanity, and the operation was undertaken in the main for the cure of the mental condition. In four cases insanity followed the performance of laparotomy.

Mental disturbances follow gynecological operations more frequently than is supposed. When there is an inherited tendency to mental disease, laparotomy should only be undertaken with an understanding of the possible outcome.

DR. JOS. E. JANVRIN, of New York, read a paper entitled, "A Clinical Study of Primary Carcinomatous and Sarcomatous Neoplasms Between the Folds of the Broad Ligaments, with a Report of Cases." He stated that malignant neoplasms other than those of the ovaries sometimes do occur *primarily* between the folds of the broad ligaments, and related the history of three cases, one of sarcoma of the Fallopian tube, the second of primary carcinoma of the parovarium, and the third of cystic angi-sarcoma of the left broad ligament, with a lipoma of the right, and with dilated tubes.

The history of all three of the cases pointed plainly to the primary development of malignant growths, two sarcomatous, and one carcinomatous, within the folds of the broad ligament.

Than the second, Dr. Janvrin knows of no other recorded case of an adenoid hypertrophy in the parovarium undergoing degeneration and transformation into carcinoma; he also believes that there is no other recorded case of a primary carcinomatous development within the folds of the broad ligament, excluding those that develop in the ovary proper.

DR. WILLIAM H. PARISH, of Philadelphia, read a paper entitled "The Present and Improving Status of Cæsarean Surgery," by DR. ROBERT P. HARRIS, of Philadelphia.

Dr. Harris regards the new Cæsarean operation, *per se*, in the hands of a skilful operator and with the woman in good condition, as one of a moderate degree of risk. His personal experience covers 13 cases, with only two deaths.

The greatest obstacle to the success of Cæsarean surgery, more especially in the United States, is that cases are not brought to the obstetric surgeon until the risk of using the knife has been greatly increased by the effects of labor and attempts at delivery. Of the eighteen true Porro cases in the United States, the fetuses were already dead in eight before the knife was resorted to. The records of the most successful work in Europe show how intimate has been the connection between the living fetus and the subsequently-saved mother. The saving of the woman must thus begin with the management under the obstetrician first consulted. If he should happen to know the requirements for Cæsarean success, the case will probably be so managed as to attain it; otherwise the result may be decidedly adverse before he is fully aware of the necessities of the case.

DR. H. MARION SIMS, of New York, reported a "Unique Case of Multiple Neuro-lipomata Following Laparotomy," in which he excised the hymen for vaginismus, with a disappearance of the nervous symptoms. Eight months later, in the seventh month of pregnancy, the woman was seized with violent convulsions. The patient complained of violent pain in the left ovarian region. Examination revealed an enlarged cystic ovary jammed tightly between the uterus and the abdominal wall. Pressure caused excruciating pain.

The patient was made tolerably comfortable by inhalations of amyl nitrite up to the time of labor, when it was thought that she would be free from her hystero-epileptic attacks, by the removal of the pressure of the gravid uterus upon the ovary. Shortly after delivery, which was uneventful, the attacks came on with renewed violence, the other ovary also now showing signs of cystic degeneration. Her condition had become so distressing that laparotomy was performed. The convulsions entirely disappeared, and the woman made a good recovery.

Six months later the woman was again seized with intense circumscribed abdominal pain; the lightest touch caused the most acute pain. After considerable difficulty, a little tumor that felt like a large duck-shot was removed from the abdominal wall. On the following day, other growths in the abdominal wall were removed. Microscopical examination showed them to "consist of hardened fat and connective tissue, with a tiny nerve-filament running through the whole, and seemingly tightly in the grasp of the tumor itself."

Despite repeated removal the growths recurred, resisting all therapeutic measures. At the end of the second

year the growths showed evidence of disappearing, and in the thirtieth month from the first appearance of the growths, the last was removed, not to return. The woman has now enjoyed good health for three years, warranting the hope of permanent cure.

(To be continued.)

AMERICAN DERMATOLOGICAL ASSOCIATION.

Fifteenth Annual Meeting, held at Washington, September 22, 23, 24, and 25, 1891.

FIRST DAY—SEPTEMBER 22D.

THE meeting was called to order by DR. F. B. GREENOUGH, of Boston, who delivered the President's Address.

The first paper read was by DR. H. G. KLOTZ, of New York, entitled "Dermatitis Hemostatica."

DR. L. A. DUHRING, of Philadelphia, followed with a paper, "Report of a Case of Universal Erythema Multiforme," accompanied by a colored portrait of the case and specimens of large plates of exfoliated epidermis shed during the course of the disease.

DR. SHEPHERD, of Montreal, asked if any drug had been administered for the rheumatism that was a marked feature in the case, to which Dr. Duhring replied, "No. The treatment had been entirely negative."

DR. FOX, of New York, had seen a case somewhat resembling that of Dr. Duhring, in which there was a question as to whether or not the eruption had been caused by some drug that had been taken for a co-existing gonorrhea. He thought that it was a purely accidental occurrence, as exfoliation of the skin is often seen after other diseases, such as psoriasis.

DR. SHEPHERD, of Montreal, reported a case of "Sarcoma of the Arm Involving the Skin," for which amputation was performed. The patient was a healthy man, aged thirty-five years; no history of syphilis. A small nodule appeared two years previously over the ulna; this was at first movable; soon other nodules appeared, became attached to the skin, and finally ulcerated, the ulcers afterward fusing together, forming one huge, irregular ulcer, with sharply cut, indurated edges and sloughing base, having very much the appearance of a syphilitic ulceration. In a short time the chains of nodules, large and small, were seen extending along the inner side of the biceps muscle from the bend of the elbow to the axilla; they evidently followed the course of the lymphatic trunks. Some of these nodules were excised and pronounced by the pathologist of the hospital to be spindle-celled sarcoma. The growth apparently originated in the cutis, and the structures earliest involved were the lymphatics. The pain, which was most severe, occurred chiefly at night, and antisyphilitic remedies were for a time employed, but with no permanent benefit. Owing to the increasing ulceration, which rendered the arm useless, and the intense pain, the arm was amputated at the shoulder-joint. The axilla was found full of infiltrated glands that closely embraced the bloodvessels. The man remained well for a year, when there was great pain again and recurrence of the growth in the stump. This growth was excised, without much relief from the pain, however, so that later Dr. Shépherd resected the cords of the brachial plexus above the clavicle, with the result that since that

time (three months) the pain has been completely relieved. The most interesting point in the case is the early, rapid, and extensive involvement of the lymphatics—an unusual course in sarcoma. Melanotic sarcoma not infrequently involves the lymph glands early, but not other varieties of sarcoma.

This was followed by a paper by DR. S. SHERWELL, of Brooklyn, upon "Multiple Sarcomata: History of a Case Showing Modification and Amelioration of Symptoms with Large Doses of Arsenic."

Dr. Sherwell removed in all from this patient thirty growths, some of which were quite large, one three and three-quarter inches in diameter. Dr. Wheeler about a year later, in a series of operations, removed the immense number of one hundred and seventy, large and small. In the interval between leaving Dr. Sherwell's care and coming under that of Dr. Wheeler, the patient had interrupted or almost suspended treatment with large doses of arsenic, which had caused the complete or almost complete disappearance of all growths. They recurred so rapidly that Dr. Wheeler adopted the same internal treatment that Dr. Sherwell had instituted, with the most decided and gratifying results, namely, the same rapid disappearance of the growths. The case, however, neglected treatment and died in a few months.

In the discussion, DR. ZEISLER, of Chicago, mentioned brilliant results in a case of lupous sarcoma from the administration of arsenic. In a case of pigmentary sarcoma he had given the drug without effect.

DR. J. C. WHITE, of Boston, had seen good effects from the use of the drug in one case of sarcoma.

DR. ROBINSON, of New York, had not had much success with arsenic. He believed that many cases of so-called multiple sarcomata were in reality microbic in origin and not true tumors.

The next paper read was by DR. R. B. MORISON, of Baltimore, on "The Hypodermatic Use of Hydrgyrum Formamidatum in Syphilis," which will appear in a later number of THE MEDICAL NEWS.

In the discussion, DR. CORLETT, of Cleveland, said that he had found hypodermatic injections of mercury of great use in some cases, such as those cases in which the stomach was rebellious.

DR. KLOTZ, of New York, had employed hypodermatic injections in syphilis. While they are doubtless of value, in most cases older methods of treatment are quite as good.

DR. GREENOUGH, of Boston, said that while greatly interested in the subject of hypodermatic medication in syphilis, he had found it impossible to get his patients to submit to it. He thought that it was useful only in exceptional cases in which other plans could not be used. Its ultimate result was no better than that of other plans.

DR. JOSEPH GRINDON, of St. Louis, Mo., read a paper entitled "A Case of Lichen Scrofulosorum." In this case the lesions were collected in groups and segments of rings extending over both scapular regions; they were miliary in size, firm, and in many instances pierced by hairs. Scattered among them were acne lesions. The picture, taken as a whole, was an almost exact counterpart of that of a small miliary papular syphilide.

The case was reported: 1st. On account of the rarity of the disease, not over a half-dozen cases having been

reported in the United States and Canada to date; 2d. The age and sex (female, twenty-two years) being unusual; 3d. Because of the further surprising fact that the family history and hygienic surroundings of the patient were of the best.

(To be continued.)

ASSOCIATION OF AMERICAN PHYSICIANS.

Sixth Annual Meeting, held at Washington, September 22, 23, 24, and 25, 1891.

FIRST DAY—SEPTEMBER 22D.

THE PRESIDENT, DR. WILLIAM PEPPER, opened the meeting with an address in which he spoke feelingly of the members who had been removed by death since the last meeting. Dr. Fordyce Barker and Dr. Joseph Leidy, both of whom are honorary members, were especially eulogized. In a few well-chosen remarks a cordial welcome was extended to the members of the Association and invited guests.

By a unanimous vote, DR. WILLIAM P. NORTHRUP, of New York; DR. ANDREW H. SMITH, of New York; DR. AMOS L. MASON, of Boston; and DR. A. MCPHEDRAN, of Toronto, Canada, were elected members of the Association.

The discussion on "The Treatment of Visceral Tuberculosis by Koch's Method" was opened by DR. F. P. KINNICUTT, of New York City.

From December 10, 1890, to June 1, 1891, Dr. Kinnicutt had inoculated 40 cases with tuberculin. The cases were classified as follows: Pulmonary tuberculosis, 13; laryngeal tuberculosis, 7; lupus, 6; tuberculosis of joints, 5; tuberculous adenitis, 4; tuberculous affections of bones, 2; tuberculosis of the prostate, 2; tuberculous epididymitis, 1; rodent ulcer, 1; for diagnosis only, 8. Only the pulmonary and laryngeal cases were dwelt upon.

Dr. Kinnicutt urged the necessity of using fresh solutions of tuberculin. One milligram was the maximum beginning dose; in some cases only one-half this amount was administered, the dose being gradually increased as tolerance was established.

He divided the pulmonary cases into (a) notable improvement in the local and general conditions; (b) no improvement, or result variable; and (c) distinct deterioration. The following are the conclusions reached:

The occasional harmful action of the remedy is recognized. It possesses marked affinity for tuberculous tissues. It does not confer immunity when injected into healthy bodies, but in some cases it seems to predispose to contagion or to light up a latent trouble. He does not consider the constitutional symptoms necessary to the beneficial action of tuberculin, but believes that the remedy is a very complex body, and that the efficient therapeutic principle is separate and distinct from that causing the constitutional manifestations, which he maintains are harmful rather than otherwise.

The use of tuberculin in pulmonary tuberculosis is useful only in the earliest stages of the disease. The establishment of tolerance differs widely in different cases. In incipient cases the remedy is apparently capable of exciting pneumonic processes; and in localized tuberculous pleurisy, a general pleurisy may follow its use.

Hemoptysis during the administration of the remedy is rare. Dr. Kinnicutt concludes that the remedy is useful in certain varieties of cases.

DR. HAROLD C. ERNST, of Boston, continuing upon the same subject, gave the result of his experience. He did not think the best results from tuberculin have been yet attained, but that the future may demonstrate some modification of the present remedy, or that something to which this may lead will yield valuable assistance in the treatment of tuberculosis. Of twelve cases of marked pulmonary tuberculosis, five were reported as relieved. He could not report any as cured. There were no deaths.

Of twenty-two surgical cases, two were much relieved; twelve were not relieved; and two died. The remainder, including such cases as lupus, and joint and glandular affections, were relieved. Here, again, no cases were cured. In a general way, the number of bacilli in the sputum bears some relation to the condition of the patient. He has observed marked and rapid improvement in some cases of tuberculosis, especially the external forms.

Dr. Ernst concludes that tuberculin does not possess any diagnostic value, so as to be of any service for clinical use. At times, temporary benefit results. He has had no experience with ill-effects after its use. The results obtained would not induce him to make further use of it in the treatment of tuberculosis.

DR. WILLIAM OSLER, of Baltimore, reported the result of the use of the remedy at the Johns Hopkins Hospital. Twenty-two cases of pulmonary tuberculosis and three cases of pleurisy were inoculated. None were cured; five were decidedly benefited in their general condition, gaining in weight from nine to fourteen pounds. The bacilli did not disappear from the sputum, but the cough decreased. Nine cases seemed worse for the treatment; in four the condition remained unchanged, and in four slight improvement resulted. No deaths occurred in patients under treatment. The three cases of pleurisy improved in general condition and in weight.

DR. J. P. C. GRIFFITH, of Philadelphia, who had charge of the ward for tuberculosis at the Hospital of the University of Pennsylvania, reported the results of the use of tuberculin in nineteen cases that he had carefully studied. In only one case did decided improvement follow; in this, the general condition became much better, but the consolidation at the apex gradually extended. A number of others improved in general health, but not more, perhaps, than could be accounted for by the favorable conditions incident to a well-regulated hygienic regime. In many cases the sputum and number of bacilli diminished. Albuminuria frequently followed the injections, and at times blood-corpuscles appeared in the urine. It was not possible to decide that the remedy caused the improvement in any case. One case was apparently made worse.

DR. J. W. ROOSEVELT, of New York City, followed with a paper entitled "Experimental Studies on the Causes of the Localization of Pulmonary Phthisis and Certain Other Infectious Diseases of the Lungs." Tuberculosis of the lungs usually begins in the upper lobes. The speaker objected to the generally accepted explanation of infection by inspiration of bacilli with the

dust of the atmosphere. In many experiments that he has made, he has been unable to force dust beyond the larger bronchial tubes in the lungs. He disagrees with those who believe the upper lobes of the lungs expand less than other portions. The bacilli seem first to lodge at the ultimate bronchioles. Dr. Roosevelt thinks that the bacilli gain entrance into the blood through the blood-channels and lymph-channels, by absorption through the mucous membranes of the nose, pharynx, and stomach, and, reaching the blood-stream, are arrested at the pulmonary capillaries. He also thinks that his experiments have demonstrated that foreign bodies in the blood-stream adhere to the upper wall of the vessels, hence the final lodgment in the upper lobes.

In the discussion, DR. WELCH disagreed with the view last mentioned, and called attention to the fact that embolic processes do not by preference select the upper lobes. Miliary tuberculosis is less marked at the apices than at other portions, and hemorrhagic infarcts are rare at the apices. He queries whether the bacilli may not go to all parts of the lung, but find conditions at the apex of the lung more favorable for growth.

DR. ORD, of London, also expressed his belief in the selective influence as the cause of the location of the initial lesion. Microscopical examination of apices of lungs in animals shows a less perfect structure than in the other portions, and he thinks that as a result there may here be a lowered resistance.

DR. JACOBI, of New York, stated that he does not believe that a healthy lung is subject to tuberculosis, and that he considers tuberculosis by embolism rare. He believes infection generally occurs through a diseased mucous membrane, in the course of conditions like catarrh.

DR. VAUGHAN, of Ann Arbor, called attention to the fact that the embolic cases of tuberculosis rarely affected the apices, and that therefore the theory advanced by Dr. Roosevelt could not stand.

W. T. GAIRDNER, M.D., LL.D., Professor of Medicine in the University of Glasgow, made some highly interesting extemporaneous remarks on "An Experience in Sanitary Administration in Connection with Cholera in Glasgow in 1866." In 1865 culminated a most severe epidemic of typhus fever, numbering its victims by thousands. The sanitary conditions of the city were exceedingly bad. An epidemic of cholera was anticipated, and the Privy Council communicated with Dr. Gairdner in reference to measures to combat the epidemic should it appear. Five small hospitals were built, and handed over to the parochial boards to take charge of all diseases except cholera, Dr. Gairdner and eighty assistants to assume entire charge of all cases of cholera, should they appear. Other measures were set on foot to inspire the people with confidence and teach them prophylaxis.

In September, 1866, the first case of cholera was reported; by December the epidemic had disappeared.

The highly satisfactory result of the organization described, led Dr. Gairdner to consider a plan for permanent operation, and to be followed in similar epidemics.

SECOND DAY—SEPTEMBER 23D.

The discussion on the "Remote Results of the Removal of the Ovaries and Tubes" was opened by DR.

WILLIAM T. LUSK, of New York, Referee, who made a strong appeal for greater conservatism in pelvic surgery. During the preceding five years he has removed the ovaries and tubes in sixty-five cases for degenerative changes or myomatous growths.

DR. Lusk objects to the removal of healthy ovaries and tubes for the various reflex disturbances and nervous symptoms commonly supposed to depend upon these organs. He considers normal ovariectomy little short of malpractice. He believes, however, that Tait's operation has a useful field. Recovery may be expected in hydrosalpinx, and should the diagnosis be uncertain, he does not hesitate to use the exploring needle. In cases of pyosalpinx he considers draining from below good practice. More patience and persistence in therapeutic measures were urged before final resort to operation.

DR. WHARTON SINKLER, of Philadelphia, Co-referee, expressed the view that pyosalpinx and other inflammations constituted the typical indication for the removal of the tubes and ovaries.

Nervous symptoms, like those constantly observed at the menopause, are not infrequent after oophorectomy. Insanity in some form occasionally seems to depend upon this operation. The immediate result of the operation is satisfactory; but in the cases of operation for nervous symptoms relapse is common. In the cases in which insanity occurs only at the menstrual period operation may be expected to do much good. Following operation for diseased appendages, improvement in the general health and in flesh usually occurs.

DR. J. J. PUTNAM, of Boston, presented the views of Boston surgeons concerning removal of the ovaries and tubes. Of 24 cases referred to, in which the organs were but little diseased, the operation being performed largely for nervous symptoms, 8 were reported as benefited, 11 not benefited, and 2 others died of other causes. In some cases favorable results followed operation; in one instance, a woman addicted to the morphine habit, acquired by taking the drug for pain, was entirely cured after operation.

DR. S. WEIR MITCHELL, of Philadelphia, expressed the need for more complete statistics. The careful operators, whose work had been referred to in the papers, did not perform all of the operations. It was from the cases treated by the young and inexperienced that he thought impressive lessons might be learned. Dr. Mitchell thinks that ten, fifteen, or twenty years should elapse before finally deciding the remote effects of the operation. He strongly urges observation for some time before operation, and even consultation before recourse is had to surgical measures. The practical abolition of the death-penalty in surgery, he feared, led to operations without proper consideration.

DR. GAIRDNER, of Glasgow, related an interesting case in a young single woman, who for a long time suffered the most excruciating pelvic pains, for which she sought medical advice. As this was before the day of pelvic surgery, other measures were employed. It was symptomatically, however, just such a case as oophorectomy is now done for. The patient married when twenty-five years old, and in a few months became pregnant, when all pain disappeared and never returned.

DR. LEE, of New York, does not counsel operation

for nervous symptoms; but permanent structural disease of the appendages, when once diagnosed, is, to his mind, a positive indication for surgical interference.

DR. GAIRDNER keeps up correspondence with his cases for from five to eight years, and in no case has he had cause to regret having operated.

DR. WALTHAM, of Louisville, could not conceive of any condition justifying normal ovariectomy. He considered laparotomy at times a conservative operation.

DR. JAMES STEWART, of Montreal, followed with a paper on "Nerve-stretching in Inveterate Cases of Trigeminal Neuralgia." He confined his observations to those inveterate cases commonly called epileptiform.

Three cases were reported from his own observation free from pain for thirteen, twelve, and four months respectively after operation. He was able to collect from the literature only eleven other cases that had been reported nine months or later after operation.

The results of neurectomy are more permanent than those of stretching. Stretching is a mild operation, and may be repeated several times before resorting to neurectomy or ligation of the common carotid. If the neuralgia is general, several branches of the nerve should be stretched.

DR. FRANCIS DELAFIELD, of New York, read a paper on "The Diseases of the Kidneys Popularly Called 'Bright's Disease,'" which will be published in the October number of *The American Journal of the Medical Sciences*. The following is a brief résumé.

The time has fully come to abandon the idea that there is such a disease as Bright's disease, and to cease in the attempt to describe varieties of a disease that does not exist.

The different forms of kidney disease that are commonly included under the name of Bright's disease can all be conveniently classified under the heads of: Congestion of the kidney; degeneration of the kidney; inflammation of the kidney.

Acute congestion of the kidneys is produced by the ingestion of poisons, by extirpation of one kidney, by injuries, by surgical operations, and by unknown causes.

Chronic congestion of the kidneys is produced by some long-continued mechanical interference with the circulation of the blood, an interference that necessarily causes congestion of other parts of the body as well as of the kidneys. The characteristic changes in the kidneys are: Swelling or flattening of the epithelium of the cortical tubes, dilatation and thickening of the capillaries of the glomeruli, congestion and dilation of the pyramidal veins.

Degeneration of the kidneys is always a secondary process induced by the introduction into the body of inorganic poisons or of the poisons of the infectious diseases, or by the effect produced on the body by chronic diseases or vicious modes of life, or by disturbances of the circulation. *Acute degeneration of the kidneys* is almost constantly found with the infectious diseases and with poisoning by arsenic, phosphorus and mercury. Acute degeneration, therefore, includes a well-defined set of cases, definite in their lesions, their causes, their symptoms, and evidently not likely to be influenced by any treatment. *Chronic degeneration of the kidneys* is produced by the same mechanical causes as those that produce chronic congestion, by chronic

alcoholism and by vicious modes of life. It is, therefore, always a secondary lesion.

The inflammations of the kidneys are naturally subdivided into: Acute exudative nephritis; acute productive or diffuse nephritis; chronic productive or diffuse nephritis with exudation; chronic productive or diffuse nephritis without exudation; suppurative nephritis; tuberculous nephritis.

Acute exudative nephritis is an acute inflammation of the kidneys, characterized by congestion, an exudation of plasma, an emigration of white blood-cells, and a diapedesis of red blood-cells from the vessels; to which may be added swelling or necrosis of the renal epithelium and changes in the glomeruli. Of such a nephritis we may distinguish three varieties:

1. A mild form, which occasions symptoms during life, but leaves no lesions in the kidneys after death.
2. A more severe form, in which we find inflammatory changes in the kidneys after death.
3. A form characterized by the excessive production of pus-cells.

In the mild cases we find no decided lesions in the kidneys after death. In the more severe cases the kidneys are increased in size, their surfaces are smooth, the cortical portion is thick and white, or white mottled with red, or the entire kidney is intensely congested. Such conditions are characterized by the evidences of exudative inflammation in the tubes, stroma, and glomeruli.

As to *etiology*, acute exudative nephritis is frequently a primary disease, occurring either after exposure to cold, or without discoverable cause. It complicates infectious diseases and severe inflammations. The urine is diminished in quantity; its specific gravity is apt to be high; it contains albumin in considerable quantity, hyaline and granular tube-casts, blood-cells and epithelial cells.

Acute productive or acute diffuse nephritis is one of the forms of scarlatinal nephritis; it occurs early and late in the course of diphtheria; it is the most important variety of the nephritis of pregnancy, and it is especially frequent as a primary nephritis with or without a history of exposure to cold. During the acute periods of the nephritis the urine is scanty, colored by blood, of high specific gravity. It contains much albumin, numerous casts of all kinds, and red and white blood-cells.

Chronic productive or diffuse nephritis with exudation frequently occurs as a primary disease, especially in young adults. It follows acute diffuse nephritis, chronic congestion and chronic degeneration of the kidney. It may complicate syphilis, chronic phthisis, chronic endocarditis, prolonged suppuration, and chronic inflammation of the bones and joints. The urine varies in quantity at different times. The specific gravity and the proportion of urea to the ounce of urine slowly diminishes. In the cases of shorter duration the specific gravity is apt to run between 1.012 and 1.020. In the very chronic cases it will be between 1.001 and 1.005. The urine contains albumin and casts.

In chronic diffuse nephritis without exudation the urine is increased in quantity, of a specific gravity of about 1.010, containing a diminished quantity of urea, without albumin or casts, or with a trace of albumin and few casts, except during exacerbations of the nephritis, when the quantity of albumin and the number of casts may be considerable.

Acute congestion of the kidneys can be relieved by the application of heat to the surface of the body. Chronic congestion is best managed by the drugs that stimulate the heart and dilate the arteries. We evidently have no means at our command by which we can influence acute degeneration of the renal epithelium. Chronic degeneration also seems to be a condition that we are unable to treat.

In acute exudative and in acute diffuse nephritis the main indications for treatment are to diminish the severity of the nephritis and to regulate the circulation. To diminish the severity of the nephritis we employ cups over the lumbar region, heat over the lumbar region or over the entire body, and the internal use of calomel, sulphate of magnesia, opium, aconite, or digitalis.

The disturbances of the circulation are largely the causes of the cerebral symptoms and of the dropsy. With a laboring heart and contracted arteries we employ the drugs that dilate the arteries—chloral hydrate, opium, nitrite of amyl, and nitro-glycerin—or we diminish the quantity of the blood by venesection, sweating or purging. With a feeble heart and relaxed arteries we use the cardiac stimulants.

In chronic nephritis climate and mode of life constitute the important parts of the treatment; it is doubtful if drugs exert any effect on the nephritis. A warm, dry climate and an out-of-door life are of the greatest importance. Medical treatment can, however, be employed with advantage for the anemia, the dropsy, and the disturbance of circulation.

DR. ANDREW H. SMITH, of New York, read a short paper, expressing belief that albumin is a transition-substance, capable of existing in several different forms. In a series of experiments he boiled a solution of serum-albumin, and removed the precipitate by filtration. Nitric acid was added to the filtrate and again the mixture was filtered. Precipitates were further produced by the addition of bichloride of mercury, ether and chloroform, thus showing that no one reagent removed all of the albumin.

DR. VAUGHAN, of Ann Arbor, in testing urine for albumin, depends solely upon heat and nitric acid, separately and combined, and acetic acid, with ferrocyanide of potassium, and does not consider the other reagents reliable.

THIRD DAY—SEPTEMBER 24TH.

A Discussion upon the Relations between Arterial Disease and Visceral Changes was opened by DR. GEORGE L. PEABODY, of New York, Referee. He confined himself to the consideration of arterio-sclerosis. The cause of the disease is a general defect of nutrition, with such special etiological factors as heredity, syphilis, alcoholism, old age, etc.

According to the view of Thoma as to the cause of arterio-sclerosis, the muscular coat of the artery loses tone, as a result of which the vessel dilates. The blood-current then becomes slower. To compensate for the dilatation of the vessel, a new growth occurs in the intima, which may almost occlude the artery. This is the only lesion that Dr. Peabody has succeeded in finding in a number of cases of angina pectoris examined. One of the first evidences of the disease is seen in the eye-ground. The vessels elongate, as shown by their

greater tortuosity. The carotids and their branches at times seem to be the first to be affected.

DR. W. T. COUNCILMAN, of Baltimore, Co-referee, reported the result of a study of some forty cases of arterial and visceral disease at the Johns Hopkins Hospital. He believed, with Dr. Peabody, that the disease originates in the muscular coat of the arteries.

In the discussion, DR. ORD, of London, expressed the belief that the disease was a general one, affecting the whole system, and possibly in some way connected with gout. Gout being such a common affection in London, he had had opportunity to see many cases of the disease under discussion.

DR. GAIRDNER, of London, discussed the relation of the disease to aneurism.

DR. R. H. FITZ, of Boston, read a paper on "Intestinal Perforation in Typhoid Fever: its Prognosis and Treatment." The writer said that this complication is found in about 1 per cent. of all cases of typhoid fever, and is the cause of death in somewhat more than 6 per cent. of the fatal cases. It rarely occurs in children, and is twice as frequent in man as in woman. It is present in the small intestine in more than four-fifths of the cases, and usually proves fatal during the first week after its occurrence. It takes place in mild or in severe cases, and its symptoms may be absent or latent, gradual or severe.

Differences of opinion concerning its prognosis have existed for many years, and are based upon a lack of agreement as to the significance of the symptoms. Though these are often called characteristic, they give evidence only of a peritonitis, general or circumscribed. This may, in typhoid fever, result from a variety of causes, and fatal perforation may occur without any symptoms suggesting its presence.

In most cases of recovery from symptoms of perforation of the bowel in typhoid fever an attack of appendicitis is closely simulated, while in the great majority of the fatal cases other parts of the bowel than the appendix are perforated. It is probable that the appendix is more often inflamed and perforated in typhoid fever than has hitherto been suspected.

In typhoid fever the prognosis of apparent perforation of the bowel is to be regarded as the more favorable the more closely the symptoms and their course resemble those of appendicitis.

In the treatment of this complication early laparotomy is reported to have been tried in ten cases, with but one successful result; while of twenty-seven cases of circumscribed peritonitis in typhoid fever, largely attributed to intestinal perforation, three recovered after incision, seventeen after resolution, and nine after the spontaneous discharge of pus.

It is recommended that immediate laparotomy be employed for the relief of suspected intestinal perforations in typhoid fever only in the milder cases of this disease. In all others evidence of a circumscribed peritonitis should be awaited, and may be expected in the course of a few days. Surgical relief of this condition should then be urged as soon as the patient's strength will warrant.

In the discussion, DR. J. M. DA COSTA, of Philadelphia, stated that he had recently met with two cases of intestinal perforation in typhoid fever, in which opera-

tion was performed in one within six hours after the first symptom. The patient seemed to do well at first, but died some twenty-six hours later.

In the second case an operation was not performed until thirty-six hours after the perforation. This patient also perished.

Dr. Da Costa would not advise operation for perforation. In cases, however, in which perforation has occurred and the peritonitis has been localized by adhesive inflammation, and the patient should live, an operation could be performed later for the peritonitis. Should general peritonitis follow perforation, any means of treatment must prove futile.

DR. WILLIAM PEPPER, of Philadelphia, was particularly struck by the number of cases of recovery after perforation reported in medical literature. He feared that in some of these cases a mistake in the diagnosis had been made. He was reminded of three cases in which he had recently been asked to see patients in the third week of typhoid fever, all of whom proved to be suffering from appendicitis.

DR. HENRY P. WALCOTT, of Cambridge, read an interesting paper on "The Relation of Drinking-water to Disease," in which he pointed out that neither the appearance nor the taste of water is to be relied upon as indicative of purity or impurity. Even chemical analysis may often fail to detect serious objections in water. Dr. Walcott believes that it is either living organisms or their products that are most harmful.

The last paper of the day was "A Contribution to the Pathology of Pernicious Anemia," by DR. J. P. CROZIER GRIFFITH and DR. CHARLES W. BURR, of Philadelphia.

A new classification of the anemias, upon a more scientific basis, was proposed.

DRS. GRIFFITH and BURR have found that by treating with ferrocyanide of potassium sections of the liver from cases of pernicious anemia the blue reaction characteristic of iron is produced. This reaction was wanting in all other cases.

For purposes of comparison the organs of patients dead of other forms of anemia were examined, and in each case the distinct difference from pernicious anemia was demonstrated.

For this reason, as well as on account of the other characteristics of the affection, they classify pernicious anemia as a distinct anemia.

Experiments upon animals are still being made, which being incomplete, were not reported at this time.

(To be continued.)

AMERICAN ASSOCIATION OF ANDROLOGY AND SYPHILOLOGY.

First Annual Meeting, held at Washington, September 22, 23, 24, and 25, 1891.

FIRST DAY—SEPTEMBER 22D.

The proceedings were opened by a paper on "Reflex Irritations and Neuroses Caused by Stricture of the Urethra in the Female," by DR. FESSENDEN N. OTIS, of New York, in the absence of whom the paper was read by his son, DR. W. K. OTIS. Stricture of the urethra in the female is rarely considered or even re-

ferred to in works on the general diseases of females, or on the special diseases of the genito-urinary organs of the female. From this it might be inferred that the difficulty is so rare or unimportant as to be of little consequence. Symptoms in the female that in the male would at once be accepted as indicating the probable presence of urethral stricture are often referred to under the title of "irritable bladder," and attributed to causes quite independent of their possible relations to the urethra. The fact that stricture of the male urethra is accepted as usually due to either gonorrhreal inflammation or to some traumatic cause, while the "irritable bladder" in the female occurs quite independently of any previously recognized inflammation or injury, tends doubtless to prevent the consideration of stricture as a possible cause of the trouble. In regard to the origin of organic urethral strictures, in either male or female, Dr. Otis is thoroughly convinced that the largest proportion depended upon cicatrical deposits due to lithiasis, at periods often long antecedent to the gonorrhea to which they are attributed. The histories were given of four cases of stricture of the urethra in the female, causing reflex troubles as varied and severe as those occasionally caused by stricture of the urethra in man. Relief was afforded by removal of the strictures. The desirability of early exploration of the urethra by means of the urethrometer or the bulbous sound was suggested, in order to promptly eliminate at least one important element of failure in the diagnosis and treatment of such cases.

DR. ROBERT W. TAYLOR, of New York, read a paper on "Genital Chancres in Women." He stated that while chancres of the genital organs were common in both sexes, extra-genital chancres were more common in women than in men. In women they are more irregular in their course and are often small and ephemeral, so that their nature is not suspected. For clinical purposes, Dr. Taylor classed genital chancres in women as follows:

First. The superficial or chancrous erosion, which appears first on the mucous membrane, and is liable to be mistaken for a ruptured herpetic vesicle or an abrasion. It is benign in appearance, and begins as a red spot somewhat deeper in color than the mucous surface on which it is seated. It has but a short period of existence and frequently comes and goes without the knowledge of its bearer. Second. The scaling papule or tubercle, which is found upon the outer surface of the labia majora, upon the labia minora, upon the prepuce of the clitoris, upon the internal surface of the thighs, the inguinal folds and the hypogastrium. It begins as a small, dull-red papule, and when irritated it loses its epidermal covering and becomes raw and exuding. All chancres of this variety are slow in disappearing. Third. The elevated papule, which presents the appearance of a small, well-circumscribed, flat or elevated lesion, the surface of which is similar to that of the chancrous erosion. It is seen in its most typical form upon the mucous membrane of the labia majora and minora. It may become much hypertrophied and around it may develop a greater or less degree of indurating edema. It rarely shows marked induration. Fourth. The encrusted chancre, which is not uncommonly found upon the pudendal cutaneous surfaces, and indeed upon

any portion of the integument. Encrusted chancres are said not to be found within the area of the mucous membrane of the vulva, but it is not uncommon to find chancres in an encrusted state at the fourchette, and they are rarely found upon the clitoris and the labia minora. Rarely the chancre called by Fournier *chancre multicolore*, or the *chancre en cocarde* is found, in which the surface of the chancre presents a series of concentric zones of different colors. Fifth. The indurated nodule, which is rare in women, although common in men. In men the syphilitic neoplasm is, as a rule, circumscribed and compact; in women it tends to diffuse itself more loosely into the soft mucous tissues. Sixth. The diffuse exulcerated chancre, which is not infrequently observed in women of the lower order, who are uncleanly in their habits and intemperate. It presumably begins as a chancrous erosion. This form of chancre sometimes looks like raw beef, and at other times like an elephantine encrusted chancre.

As a rule, chancres in the female are unaccompanied with pain. Chancres of the vagina are rare.

In reply to an inquiry by Dr. Edward R. Palmer, of Louisville, Ky., as to whether chancres were more common on the upper or the lower lip, Dr. Taylor stated that it was a matter of chance. Of the labial chancres that had come under his observation, probably 60 per cent. had been of the lower lip.

DR. J. BLAKE WHITE, of New York, presented some "Observations upon the Syphilitic Cachexia." He stated that although syphilis has for centuries been a familiar disease, the essential nature of the poison still remains undiscovered. Specific diseases ordinarily exhibit a peculiar affinity for certain tissues and organs of the body, but after the initial manifestation of syphilis and its accompanying adenopathy, every structure of the body may become attacked, and if it is not checked in its inception a host of consecutive ills may ensue; the unfortunate sufferer cannot hope for spontaneous resolution, as occurs in many other maladies. Certain temperaments are less prone than others to put on the cachetic livery of the disease, but experience tends rather to prove that no particular temperament enjoys an absolute immunity from it. Patients suffering from any form of scrofula or tuberculosis, or whose kidneys are diseased at the time of infection, suffer most severely from the consecutive accidents of syphilis. In such cases it becomes necessary to use tonics and to have recourse to remedies that also act through the glandular system. The therapeutic value of the salts of gold in the cachexia of syphilis has been strongly advanced. A combination of the salts of gold with those of manganese in tuberculous and syphilitic affections has proved an especially advantageous remedy. The salts of platinum may be substituted for those of gold. The salts can be combined in fluid form and administered hypodermatically, glycerin being used as a solvent.

DR. JOHN A. FORDYCE, of New York, read a paper on "The Occurrence of Nephritis in Syphilis." He said that the occurrence of albuminuria, with or without edema, has not infrequently been observed early in the course of syphilitic manifestations. Cases had come under his observation in which the albuminuria had disappeared under the influence of mercury. This transient albuminuria is comparable with other congestive phe-

nomena that take place in internal organs during the early period of this disease, or with the albuminuria that so frequently complicates acute infectious diseases. In addition to this transient albuminuria in early syphilis, and the more serious amyloid, gummatous, and interstitial nephritis, a number of observers have noted the occurrence of an acute parenchymatous nephritis, pursuing a course not unlike the nephritis of scarlatina, at times terminating in recovery and again passing into a chronic form.

DR. TAYLOR took exception to the statement that Nature does not eliminate the poison of syphilis. Syphilis is often aborted during the first or second stage. Animals are immune to syphilis, and some persons seem to possess the same immunity. Clinical evidence goes to show that syphilis sometimes does abort spontaneously. To those who suffer decidedly from the syphilitic cachexia should be added tall, thin persons, flabby individuals, and persons with light-red complexions.

DR. TAYLOR stated that transient albuminuria was common during the earlier stages of syphilis. Casts are rare, but when found they are usually of the hyaline character.

DR. J. NEVINS HYDE, of Chicago, indorsed what Dr. Taylor said about the immunity of certain persons against syphilitic infection. A number of such cases had come under his personal observation in which no symptoms had appeared after a lapse of many years.

DR. JAMES P. TUTTLE, of New York, stated that eighteen months ago a man came under his observation with a typical papular indurated chancre. Two weeks afterward he brought his wife, who had become infected, and about six or seven weeks later his mistress, who at that time had an erosive chancre. All received no treatment until the secondary symptoms appeared. The man suffered from these symptoms in their most virulent form; the wife developed them in a milder degree, while the mistress has yet never had a single symptom.

SECOND DAY—SEPTEMBER 23D.

DR. EDWARD L. KEYES, of New York, opened the session by reading a report of "A Case of Excision of Stricture and Urethroplasty for Radical Cure." He stated that the radical cure of stricture of the deep urethra is still an unsettled question. For the anterior urethra the question has been measurably solved through the zeal and energy of Dr. Otis, of New York, by his persistent advocacy of extensive dilating urethrotomy. The same solution has not yet been made applicable in the case of organic strictures of the deep urethra, nor has any other single rule been advanced to cover all cases. Dr. Keyes classified deep organic strictures into three groups, namely: the soft, the cicatrical, and the nodular. The soft stricture is not uncommon; it can be recognized by a peculiar sensation in the passage of the instrument, and can be permanently cured by continued dilatation. The history of a case of radical cure of a deep urethral stricture, complicated by perineal fistulae, and by considerable nodular tissue, was detailed. The stricture was first laid open upon a filiform guide, and the dense fibrous tissue composing it cut out; the fistulous tracts were also dissected out and a plastic operation was performed, a large flap being taken from the inner

layer of the prepuce for that purpose. This piece of tissue was first thoroughly disinfected and then sutured into place in the gap left by the excised stricture. The perineal wound healed rapidly and recovery was uninterrupted.

MR. REGINALD HARRISON, of London, stated that while his experience with this class of cases was limited, he thought that the method of treatment was valuable in deep urethral strictures. While in Paris during the past summer he had seen M. Guion treat a number of cases of traumatic stricture by excision. Instead of doing a plastic operation, however, M. Guion had closed the perineal wound by three layers of sutures.

DR. ARTHUR T. CABOT, of Boston, read a paper entitled "A Contribution to the Surgical Treatment of Ruptures of the Bladder," in which he considered the conditions of extra-peritoneal rupture of the bladder. The usual symptoms of rupture of the bladder were tolerably distinct, and in most cases the lesion can be demonstrated beyond doubt by the injection of air or fluid. This test sometimes fails when the rent is small, or when there is a valvular closure of the bladder-wound. Some authorities advise that cases of extra-peritoneal rupture should be treated by simple drainage of the bladder, either through a perineal wound or by a retained catheter. Dr. Cabot considers that this plan affords insufficient drainage for the urine that has already escaped into the tissues, or for the pus and masses of sloughing tissue following contact with the urine.

It is important for the operator to know where the rent in the bladder-wall is situated, and in what direction the urine is forcing its way into the loose peri-vesical connective tissue. When this knowledge is obtained, he can make an opening into the extravasation from the nearest available point on the surface, and establish the most direct drainage possible. An incision into the prevesical space, as suggested by Mr. Rivington, is only applicable in cases in which the rupture is in the front wall of the bladder and in which the effusion is slight. Another plan proposed in doubtful cases is to perform median cystotomy, and with the finger in the bladder to search for the rents, but this method has in some instances proved unsuccessful. In uncertain cases of extra-peritoneal rupture the best method of obtaining a knowledge of the condition of things is to open the abdominal cavity, thus getting an opportunity to thoroughly inspect and palpate the parts about the bladder. Dr. Cabot then related the history of a case in which an extra-peritoneal rupture of the bladder occurred during the operation of litholapaxy, which was at once discovered and treated by opening the abdomen. He suggested that in all cases in which a rupture is made out, immediate action should be taken, and laparotomy performed, excepting when it is evident that the urine is extravasated into the prevesical space—when a supra-pubic incision is sufficient—or in cases in which the patient's condition is such that he cannot bear more than the median operation.

SIR WILLIAM MACCORMAC, of London, stated that in many cases the diagnosis of intra-peritoneal ruptures of the bladder was easier than that of extra-peritoneal ruptures. A point of diagnosis mentioned in the textbooks on the subject, namely, extreme shock, he failed to find in two cases under his observation.

DR. L. BOLTON BANGS, of New York, stated that the cystoscope might be employed in locating rents in the bladder.

DR. KEYES stated that it was impracticable to employ the cystoscope in these cases, on account of the bleeding.

DR. CABOT called attention to the fact that the ruptured bladder would be collapsed, and so not be suitable for the employment of the cystoscope.

DR. JOHN P. BRYSON, of St. Louis, read a paper on "The Use of Salicylic Acid in the Treatment of Certain Forms of Cystitis," in which he related that about three years ago a student by mistake mixed an ounce of a 2 per cent. solution of salicylic acid in glycerin with five ounces of water for the purpose of washing out the bladder of a patient with chronic exudative cystitis, who had previously had his bladder irrigated with the standard borax solution without material benefit. The returning fluid was milky in appearance, and a second injection was made before the mistake was discovered. The patient returned the next day, and reported that he was much better, and requested that a similar injection be again given, which was done. Since then, in similar cases, a salicylic acid solution has been in common use at the genito-urinary clinic of the St. Louis College, and marked benefit has been obtained from it. It is especially useful in the more chronic cases, in which the surface of the bladder is covered with a thick or a tenacious protection, made up of mucus and necrotic epithelium. Salicylic acid has the power of dissolving or loosening the epithelial cells, and the bladder is then in a proper condition for the use of other remedies. The use of the salicylic acid solution is not of equal service in all cases of cystitis, and is distinctly contra-indicated in some. In acute cystitis, with thin exudation, it is not called for. Where there is ulceration, with a disposition to bleed, it is harmful. It is also harmful in tuberculous disease, and in old cases of prostatic disease, with sacculated bladders.

DR. EDWARD R. PALMER, of Louisville, stated that Dr. Bryson had mentioned this incident to him a year ago in Altoona, and that since then he has had considerable favorable experience with the use of salicylic acid as an injection in cystitis. He wished to state, however, that in using Thiersch's solution, which is a combination of salicylic and boric acids, his patients often complained of severe pain.

DR. L. BOLTON BANGS, of New York, stated that he was grateful to Dr. Bryson for reporting this method of cleaning out the bladder. His experience with the use of Thiersch's solution was similar to that of Dr. Palmer. He supposed the strength of the solution is somewhat a matter of judgment.

DR. JAMES P. TUTTLE, of New York, said that he had used Thiersch's solution for the past three or four years for irrigating the bladder, and he desired to thank Dr. Bryson for telling him why he had such good results in those cases.

DR. WILLIAM H. HINGSTON, of Montreal, read a paper on "Undetected Stone," in which he dwelt upon the difficulty sometimes experienced in locating a stone in the bladder. The most careful exploration may fail to reveal its presence. In examination for stone the bladder should be partially filled, and the patient can be

made to empty it during the exploration, with the hope that the calculus (if there be any) will strike against the instrument. The slight difference in specific gravity between the calculus and the turbid fluid contents of the bladder allows the stone to float about, and in that condition the sound or searcher does not elicit the characteristic "click" sought for.

DR. EDWARD L. KEYES, of New York, noted that Dr. Hingston had not alluded to the washing-bottle and the small tube for the purpose of detecting stone. Another method is educating the finger to appreciate the gritty feeling—even more important than the "click."

DR. L. BOLTON BANGS, of New York, said that he was in some cases enabled to detect stone in the bladder by means of the cystoscope.

DR. EDWARD L. KEYES, of New York, read "A Note Upon a Possible Service to be Expected from Diuretin in Genito-urinary Surgery," which will be published in full in a subsequent number of THE MEDICAL NEWS.

A paper on "Encysted Stone, Complicated with Growths of the Bladder," by DR. C. H. MASTIN, of Mobile, was read by the Secretary. The history of a case in which a growth was spontaneously expelled from the bladder eleven days after operation was detailed, and the specimens were exhibited.

(To be continued.)

AMERICAN ORTHOPEDIC ASSOCIATION.

Fifth Annual Meeting, held at Washington, September 22, 23, 24, and 25, 1891.

FIRST DAY—SEPTEMBER 22D.

THE session was opened by DR. A. B. JUDSON, of New York, who delivered the President's Address, choosing as his subject, "Orthopedic Surgery as a Specialty." He said that in a Congress chiefly composed of special societies, it was proper to ask why orthopedic surgery exists and thrives as a specialty. He believed it was because orthopedic patients do not, as a rule, make absolute recoveries. There is commonly a residuum of disability and deformity, and general practitioners concur with the public in referring such cases to experts. Orthopedic patients are generally children, and in the slow methods of this specialty great disability and deformity may be avoided by continuous treatment, during which the affected part increases in ability and symmetry with the growth of the child. This is especially the domain of physical demonstration, where subjective symptoms are forgotten in view of objective signs, where diagnosis depends on what can be seen, touched, and measured, where treatment is by physical forces under direct control, and where results are recorded in degrees of an inch and fractions of an inch. Dealing thus with physical realities let us not overlook the moral verities, remembering that diligence is the price of success, and that the only desirable success is to be reached by rejecting error and cleaving to what is true.

DR. W. R. TOWNSEND, of New York, read a short paper on "Uniform Nomenclature in Orthopedic Surgery." While it was not his wish to establish a new school of pathology or to coin new names for the pathological conditions of orthopedic surgery, he felt

that as far as possible it was desirable to prevent the designation of one disease by numerous appellations. Thus, for instance, in the various hospitals of New York, hip-joint disease is known by seven different names. Dr. Townsend believes that if a uniform nomenclature were established, a uniform system of taking measurements and clinical histories will speedily follow.

On motion of DR. VANCE, of Louisville, a committee of three was appointed to consider the means of adopting some system of nomenclature that would tend to produce uniformity in this respect.

DR. HENRY LING TAYLOR, of New York City, read a paper entitled "Two Cases of a Peculiar Type of Primary Crural Asymmetry."

In the first case, that of a lady twenty-three years of age, there was a difference of two inches in favor of the left side, measuring from the anterior superior spine of the ilium to the internal malleolus. Measuring from the head of the tibia to the internal malleolus, the left leg was one and one-eighth inches longer than its mate. In the other case, in a girl of fifteen years, the left leg was one inch shorter than the right. Here, also, rather more than half the shortening was shown to be below the knee.

The peculiarity of these cases consisted in the greater size and strength of the shorter limb, of which one of the patients at least was conscious, and which was plainly demonstrated in both. In neither case was there any lesion or impairment of the nervous, muscular or osseous system beyond the unequal development, and in neither case did true lateral curvature exist.

DR. H. AUGUSTUS WILSON, of Philadelphia, reported a case of "Spina Bifida with Partial Motor and Sensory Paralysis of Both Extremities, Complete Paralysis of the Bladder and Rectum, Double Equino-varus and Purulent Bursitis."

The case was that of a colored girl, four years old, of robust appearance, an only child of healthy parents, born at full term, without a diathetic hereditary history.

The spina bifida was in the lumbo-sacral region and the pedicle measured six and one-half inches in circumference. The tumor was hard and dense except in one spot, about a half-inch in diameter, where the covering was extremely thin and the contents oozed on pressure and when the child cried. There were incontinence of urine and involuntary evacuations from the bowels, due to paralysis of the sphincters.

The flexor and extensor muscles of both legs below the knees were paralyzed and the electro-muscular contractility could scarcely be perceived. There was complete anesthesia of the right foot, ankle, and calf on the right side, also present, although less marked, on the left. There was extreme double equino-varus which firmly resisted manipulative correction. On both feet there were suppurating bursae under the distal extremities of the malleoli upon which the child stood in her attempts to assume the erect posture. Abscesses developed in the labia majora. Attempts made to arrest the suppurating bursitis by incision and the application of chemical antiseptics were followed by a persistent refusal of the incised parts to cicatrize and with no perceptible cessation of the suppuration. This failure of incised wounds to heal contra-indicated surgical attempts at correction of the equino-varus, and mechanical efforts were followed by tumefaction and threatened suppuration at the points

where pressure was necessary, and these were, therefore, also abandoned.

Preliminary puncture of the spina bifida, as recommended by James Morton, prior to injection, was followed by convulsions. The child is still living in a hopeless condition.

DR. T. M. L. CHRYSTIE, of New York, read a paper on "Congenital Club-foot, with Absence of the Great Toe and Contiguous Bones of the Instep," which will appear in full in a later issue of *THE MEDICAL NEWS*.

DR. WILLIAM E. WIRT, of Cleveland, Ohio, reported a case of "Double Club-foot, Double Club-hand, and Multiple Deformities," the complete text of which will be published in a subsequent number of *THE MEDICAL NEWS*.

DR. JOHN C. SCHAPPS, of Brooklyn, read a paper on "Mechanical Treatment after Excision of the Knee." The treatment after knee-joint excision is usually lightly passed over by authorities as simply that of compound fracture. But immobilization for a few weeks frequently fails to secure firm bony support from pelvis to ankle. The two cases reported are typical of a large class. They were in boys, respectively fifteen and seven years of age. Only a thin slice was removed from each epiphysis, and very slight flexion was allowed. Union was immediate, without suppuration. After fixation had been maintained for four months a marked degree of flexion took place. This was without recurrence of the disease. At the end of eighteen and ten months respectively after the excision by means of the osteoclast, the limbs were restored without fracture. One relapsed as late as a year and a half after the excision, but the deformity was again corrected by means of a brace. In both, union ultimately became firm with the limb in a nearly straight position.

In these cases the result of the operation was a mass of soft cancellous tissue in length nearly double that of a single epiphysis. In it were inserted at an obtuse angle two long levers, the action of which served to increase the flexion already existing. As the epiphyseal mass subsequently became firm enough to bear the increased weight still transmitted at a mechanical disadvantage, the soft condition must have been due to the congestion that disappeared after the necrotic focus had been removed. The possibility of subsequent deformity should not be allowed to weigh too heavily against excision. If the limb is put up perfectly straight and support is continued for a sufficiently long time (always less than that required by purely mechanical methods of treatment), the danger of deformity is slight. If it occur, it may be corrected within a liberal margin of time. While the operation is not always the short cut to a cure that it has been claimed to be, it has two important advantages: it abolishes at once the traumatism of motion, and removes the tuberculous focus that is always a menace to the patient's life.

In the discussion, DR. PHELPS expressed the belief that the relapses that are so frequent in these cases are due to operating on growing limbs in children under ten years of age. He claims that the limb should be placed in a straight or over-flexed position. Resection of the hamstring tendons, with the wearing of a proper apparatus, is necessary. He would not perform excision in a child under ten years of age, but in such a case would prefer scraping.

DR. HOFFA did not agree with Dr. Phelps. He believes the relapse to be due to a failure to remove all the diseased tissues. He considers it perfectly proper to perform resection in children. He regards the shortening of the limb as due not to the excision, but to the disease itself, and considers the flexion as the result of an atrophy of the extensor muscles.

DR. GRIFFITHS, of Kansas City, does not cut the hamstring tendons, but carefully removes all of the diseased portions, preserving, if possible, the inelastic patellar ligament and the extensor femoris. He urges the importance of this preservation of the inelastic tissue, and its connection with the quadriceps femoris.

DR. A. J. STEELE, of St. Louis, read a paper on "The Orthopedic Work of the Late Mr. Thomas." Mr. Thomas was a corresponding member of the Association. Dr. Steele eulogized his skill and devotion to work. Founding his belief on the inflammatory nature of joint-disease, Mr. Thomas was an earnest advocate of thorough immobilization of the joint, with the removal of all pressure. He was strongly opposed to traction, claiming that no advantage resulted and much injury was done. Dr. Steele, however, regarded traction as of great service, especially in the earlier stages of the disease.

DR. A. M. PHELPS, of New York City, exhibited "Some Lateral Traction Fixation Hip-splints." He believes that spasm of the muscles is always present in *morbus coxarius*, and that this results in an aggravation of the diseased condition. Hence the necessity for some method of immobilization of the joint. The joint should be fixed until perfectly cured, whether for a few months only or for a year. Ankylosis does not follow prolonged immobilization, but is due to pathological processes in the joint. Atrophy of the muscles, however, will follow. In the treatment of joint-inflammation rest is the most important law, as it is of all inflamed tissues. Traction should be made not only in the line of the shaft of the bone, but laterally in the line of the axis of the neck.

DR. VANCE believed that the treatment of hip-joint disease depends as much on the constitutional condition and hygienic surroundings of the patient as on the use of splints.

DR. SAYRE stated that only in rare instances does he find it necessary to employ lateral extension. He believes that in cases of fibrous ankylosis much good can be accomplished by judicious passive motion. But if pain and tenderness persist for over twenty-four hours after such motion, harm has been done.

The paper of MR. B. E. BRODHURST, of London, upon "Gonorrhœal Rheumatism and Its Treatment, Primary and Secondary," was read by DR. RIDLON. It dealt with the causes, varieties, pathology and treatment of gonorrhœal joint-inflammation, more particularly the inflammation occurring in the larger joints resulting in ankylosis. Several interesting cases were reported. Reference was made to the treatment of ankylosis by forcible extension under anesthesia, tenotomy being employed when necessary. In this manner Mr. Brodhurst had operated upon over 1000 cases of fibrous ankylosis, in none of which had an accident of any kind occurred.

DR. E. G. BRACKETT read an interesting and instructive paper upon "Atrophy in Joint-disease." He noted that in all cases of joint-disease, atrophy occurs,

of varying degree, and not directly proportional to the severity or duration of the disease. The leg is nearly uniformly involved throughout. The atrophy is usually ascribed to the direct influence of the diseased joint on the nutrition, through the nerves.

DR. BRACKETT maintained that this theory does not explain the condition, because of the variation in its occurrence and the uniform distribution over the whole leg. If due to a reflex influence from the diseased part the degree of atrophy should bear a relation to the character of the disease—which it does not. It should also more particularly affect that portion of the limb diseased; but the whole leg is nearly uniformly involved. An analogous result is seen later in the lack of development, which is proportional to the degree of freedom given the limb, and involves all parts equally, as would be expected from a physiological defect of nutrition.

It must be concluded that the degree of atrophy in joint-disease is chiefly determined by the degree of use. Atrophy occurs in other conditions not arising from disease, but occasioning restriction of function.

This atrophy is uniformly distributed over the entire limb. The lack of development is also uniformly distributed, and is proportionate to the freedom that the limb has been allowed.

In the discussion that followed, the theory of atrophy from disease was opposed by DR. YOUNG, of Philadelphia, who held that in joint-disease the reflex tetanoid spasm that occurs so early and persistently throughout is the real cause of the early and most important atrophy. In reply to a question by DR. COOK, of New Haven, as to why the foot of the diseased limb, for example, should atrophy, DR. Young said that this was the true atrophy from disease and had not the significance of the early atrophy that results from tetanoid spasm.

"The Diagnostic and Prognostic Value of High Temperatures in Chronic Joint-disease," by DR. ROBERT W. LOVETT, of Boston, was the next paper.

High temperature is a constant accompaniment of acute hip-disease and Pott's disease, the rise occurring independently of the presence of pus. Cases with unopened abscesses, as a rule, do not present higher temperatures than those in which no abscesses are to be detected.

In a series of several hundred observations of afternoon temperature in children with hip-disease and Pott's disease, it was noticed that the rise was from 1 to 4°; that in a general way the rise is greater in the severer cases; and that it may be accorded a certain prognostic significance. Cases in the later stages of the disease and convalescent cases are more likely to present normal temperatures, and any rise is to be looked upon as significant of danger.

As a universal and early symptom—being present in many instances before other physical signs—elevation of temperature is of the greatest significance and importance.

DR. WILLIAM E. WIRT, of Cleveland, presented an "Apparatus for Making Traction," unique in its design and effective in its application. It is of the rachet-and-lever pattern, in principle somewhat similar to the levers of Lagarousse, with the difference that the force of the lever is transformed into rectilinear motion, while in the

levers of Lagarousse and in fact in all forms of rachet-and-lever, the force is transformed into circular motion. The advantages of this brace (the design of DR. KARL H. VON KLEIN, of Cleveland) is that no key, screwdriver, wrench, buckle, or straps are required; it is easy to adjust and to regulate; it is not bulky or bunglesome, and it has a fine grade of adjustment.

SECOND DAY—SEPTEMBER 23D.

DR. AP MORGAN VANCE read an interesting paper, entitled "The Aspirator in Orthopedic Practice," in which he detailed the results of his experience, during the past ten years, with the use of the aspirator in the treatment of abscess from Pott's disease. He employed aspiration in all cases as soon as the diagnosis of abscess was made.

DR. ROSWELL PARK, of Buffalo, presented "A Study of Atrophies." He considered his subject from an historical point of view, alluding to the researches of Bonnet and the discussions and papers of Verneuil. He dwelt at length upon the teachings of Ollier and his pupils. The object of the paper was to popularize teachings on the subject that have been overlooked by the profession.

In a paper on "Diagnosis of Pott's Disease," DR. ROBERT W. LOVETT, of Boston, presented an able résumé of the subject, and dwelt particularly upon the importance of physical signs. The diagnosis does not depend upon the history of the case, nor can it be established by the subjective symptoms. The most important physical signs are those caused by muscular spasm and by bone-deformity. The symptoms that are caused by muscular spasm are by far the most important, since they occur before the angular deformity. Lateral deviation of the spine is to be considered a very suggestive symptom, and almost a universal symptom, of Pott's disease. High temperature was considered important as pointing to the probable presence of tuberculous bone-disease.

DR. JOHN RIDLON read a paper upon "Syphilitic Spondylitis in Children," which is to be published in THE MEDICAL NEWS.

DR. T. HALSTED MYERS, of New York, read a paper on "Pott's Disease and Pregnancy."

He considered the subject from two points of view: the effects of Pott's disease on pregnancy, and the effects of pregnancy on Pott's disease. He pointed out that by disease in the lower dorsal, lumbar, or sacral regions, the abdominal cavity is diminished in its vertical diameter, and sometimes also transversely. Abscess usually complicates disease of the lower vertebrae, and may still further diminish the capacity of either the abdominal or the pelvic cavity. In the pelvis the degree of deformity is greater the more the disease has interfered with the normal growth of the parts, and the nearer the pelvis its location. The uterus may be excited to contraction by the most varied peripheral and central influences; destruction of all its motor ganglia is well-nigh impossible, however marked the lesion.

A number of cases reported as occurring in tabetic and paraplegic women prove that the assistance of the abdominal muscles (impaired in these cases by the shape of the abdomen) is not absolutely necessary to the accomplishment of parturition, in the absence of ob-

struction from deformities of the pelvis or from resistant soft parts at the outlet.

The indication *par excellence* in the treatment of Pott's disease is to remove the weight of the trunk from the bodies of the diseased vertebrae. The mechanical effect of a weight placed anteriorly is a most disastrous crushing of the vertebral bodies already softened by disease, and totally unable to sustain even the ordinary weight of the body. The probability of abscess-formation by the weight of the gravid uterus alone is necessarily increased. The danger of rupture of an already existing abscess, or of precipitating pressure-paralysis is aggravated. Aside from this, there is during gestation a hyperemic condition of the cord and its membranes, and of the pelvis generally, and the effect of this on disease of the vertebrae must be pernicious. New centers of ossification appear in the vertebrae at sixteen years, and again at twenty-one years, indicating an unusual activity of the nutritive processes, a condition favorable to the onset of Pott's disease, or for the re-kindling of old inflammatory foci. At this age marriage most often occurs. In these cases, however, menstruation is generally delayed a number of years.

Statistics demonstrated that the mortality from Pott's disease and associated conditions is considerably higher in married than in unmarried women.

The chief danger to the mother in cases of cured Pott's disease lies in the malformations of the pelvis and abdominal walls, with the consequent greater strain on a vitality in many cases already enfeebled by the small size of the heart and lungs.

The prognosis is unfavorable in cases that develop during pregnancy. Parturition is occasionally attended with no unpleasant sequelæ.

In deciding upon treatment, four points are to be considered: Is the disease cured, or progressive? Is the pelvis contracted, or practically normal? If on examination the patient is found to be pregnant, and the disease cured, the degree of pelvic deformity will be the guide as to treatment. There can be no fixed rule in these cases; each must be judged by itself. It has been demonstrated that normal birth often follows in cases in which measurements would indicate that it was impossible.

It is important in cases of spinal caries in pregnant women for the orthopedic surgeon to make the diagnosis early, so that they may be put into the hands of the obstetrician at as early a period of gestation as possible, in order that abortion or premature labor may be induced, if necessary.

In cured cases, neither pregnancy nor labor occasions a relighting of the original process. In cases in which pregnancy complicates active disease of the spine, the pregnancy should be terminated at the earliest date possible.

DR. ALBERT HOFFA, of Würzburg, Germany, read one of the most important papers of the session upon "Pressure-myelitis in Pott's Disease," which was illustrated with microscopic slides and diagrams. His investigations showed the most frequent cause of paraplegia in Pott's disease to be a pachymeningitis, the exudate in the sheath acting as a direct poison upon the nerve-centers in addition to the pressure produced by the accumulated fluid.

DR. YOUNG referred to two cases which recovered under his care in which the loss of sensation was present, and insisted upon the distinction between the two varieties of paraplegia that occurs in Pott's disease.

DR. HERBERT L. BURRELL, of Boston, contributed a valuable paper upon "Abscesses in Pott's Disease," in which he described the symptoms, course, pathology, prognosis, and treatment of these serious complications.

His conclusions, from his personal experience, were:

1st. That efficient mechanical support of the spine is the prime factor in the treatment of caries of the spine associated with abscess.

2. That under an expectant plan of treatment abscesses will disappear.

3. That the indication for operative interference is a steady or rapid decline in the patient's general condition.

4. That the operation should consist of thorough evacuation of the abscess, and the establishment of drainage from as near the seat of the disease as practicable.

DR. W. R. TOWNSEND, of New York City, in his paper upon "Abscesses in Pott's Disease," which will appear in a subsequent number of THE MEDICAL NEWS, referred particularly to the increase in our knowledge of tuberculous abscesses that the study of bacteriology has brought about.

DR. JAMES K. YOUNG, of Philadelphia, reported a successful case of bilateral lumbar abscess associated with Pott's disease, in a very young child, and referred to the importance of the fascias in determining the course and exit of abscess in spine disease. The paper will appear in full in a subsequent number of THE MEDICAL NEWS.

The paper by MR. GEORGE A. WRIGHT, of Manchester, England, on "Evacuation of Spinal Abscesses without Drainage," dwelt upon the method of Mr. Mayo Robinson, of aspiration and injection, but more particularly upon that of Mr. Barker, in which a free incision is made, the interior of the abscess scraped with Volkmann's spoon, and then washed out with an antiseptic solution; the excess of fluid is expressed, the wound closed and dressed with firm pressure, to keep the walls in contact and the cavity, as far as possible, obliterated. His conclusions are so excellent that they are given in full. They are:

1. The first essential is *rest*, in its surgical sense, to the spine.

2. When efficient rest has been provided, an abscess should be left to itself for a period of not less than a month, unless it is increasing.

3. If the abscess increases, and is evidently going to open spontaneously, or if there is acute suppuration going on, the abscess should be dealt with by Barker's method, provided thorough asepsis can be practically assured.

4. An abscess that remains stationary for more than two months, or thereabouts, should be dealt with by Barker's method, provided rest has been afforded to the spine throughout the period.

5. Receding abscesses should be left alone.

6. Residual abscesses, if stationary or advancing, should be dealt with by Barker's method, and will certainly be cured.

7. Refilling of an abscess, or persistence of a sinus

after evacuation, should be dealt with by a repetition of the operation as soon as it is evident that repair will not take place; *i. e.*, usually in a month.

8. If there is a doubt about the real maintenance of the asepsis, either from want of training on the part of the surgeon or his assistants, nurses, friends, etc., the abscess should be left alone, or dealt with by aspiration and injection of iodoform.

DR. SHAFFER believed that as long as abscesses were small, they should be allowed to open spontaneously. In large abscesses, when there is a question of life or death, his practice is not to open the abscesses but to depend upon hygiene, mechanical and climatic treatment, under which many of his cases had recovered.

DR. H. AUGUSTUS WILSON, of Philadelphia, said that he believed that the good effects obtained by operation were largely due to the immediate closure of the skin-wound. He was not impressed with the advantages of the aspirator, except for diagnosis. He believed that when it was advisable to open Pott's abscess it should be done by free incision, either at the most dependent part or through and through, and closure of skin-wounds by subcutaneous suture and collodion before applying dressings.

DR. WILSON had found decided benefit from hyper-distention with peroxide of hydrogen (to be employed only when free incision had been resorted to), and subsequent douching with hot water.

DR. HOWARD MARSH, of London, said the opinion was growing strongly and constantly in England that these abscesses ought to be opened. In regard to the opening and thorough cleansing of the abscesses there is a difference of opinion. Mr. Barker favors the opening and dressing. Mr. Marsh believes in opening freely, cleansing thoroughly, bringing the edges together, and depending on rest and constitutional treatment.

He was at one time an advocate of aspiration, and later of hyper-distention, but in a large number of cases septic action set in, and he had abandoned the procedure. His method is free incision at once when diagnosis of abscess is established; in not more than 4 or 5 per cent. does asepsis fail, and in the large majority of cases recovery occurs. He believes that one reason for opening these abscesses is to stop the evil result of pressure symptoms.

DR. BRADFORD agreed with Mr. Marsh, and expressed the opinion that the opening of large abscesses and washing with hot water is not attended by any shock, and referred to twenty-five cases of very large abscesses in which opening was not attended by shock.

Large abscesses are sometimes absorbed; but the opening of large abscesses was unattended with shock, and time is saved.

DR. HENRY LING TAYLOR, of New York, read a paper on "The Value of Mechanical Treatment in Old and Neglected Cases of Pott's Disease."

The object of mechanical treatment in Pott's disease is twofold: first, to provide rest and protection for the spinal column and proper hygiene for the patient until the inflammatory process is arrested and repair is complete; secondly, so far as possible, to prevent or mitigate deformity. Fortunately, the same means, antero-posterior leverage support, may be adapted to both ends.

The course of this disease is often tedious, and definiti-

tive healing extremely slow. Complete bony ankylosis of the diseased vertebrae is both later and rarer than usually supposed, as indicated by more or less mobility through the kyphosis, often discoverable by careful testing in long-standing and greatly-deformed cases. Owing to imperfect treatment or other causes, rational symptoms and disability often persist for many years, coincidently with a gradual increase of deformity; or after a considerable period of immunity, the original trouble may be lighted up by a strain or fall.

These old and often apparently desperate cases usually respond kindly to efficient mechanical treatment, which should be employed to the same definite end, and with the same painstaking as in more recent ones. Even when deformity is excessive, moderate improvement of the figure may exceptionally be looked for, and increase can usually be prevented; the subsidence of local inflammation is evidenced by improvement in the patient's health, and the disappearance of suffering and general and local symptoms. Abscesses and paralysis do not prevent a favorable prognosis.

The mechanical treatment of Pott's disease in those adults and cases of long-standing that will heartily co-operate with the surgeon is not only hopeful, but usually successful, in removing disease and the disability dependent upon it, and no patient should be denied the opportunity for relief on account of age, severity of symptoms, or the long duration of his disease.

(To be continued.)

AMERICAN PEDIATRIC SOCIETY.

Third Annual Meeting, held at Washington, September 22, 23, 24, and 25, 1891.

FIRST DAY—SEPTEMBER 22D.

WHEN the meeting was called to order, the Secretary read a communication from DR. WILLIAM PEPPER, Chairman of the Executive Committee of the Congress, admitting the Pediatric Society to membership.

The President, DR. T. M. ROTCH, of Boston, made an eloquent appeal for more scientific work in pediatrics, and expressed the hope that the work of the members of the Society would compare favorably with that of those in other branches of the profession. He felt that this had not been the case sufficiently in the past.

DR. J. LEWIS SMITH, of New York, read a valuable paper on "How to Prevent Complications and Sequelæ in Scarlet Fever."

He first pointed out that the type of scarlet fever varied in different epidemics, the disease sometimes being mild, with a low mortality; at other times severe, with a high mortality.

No other disease of childhood presents as many complications; and sometimes death occurs from the intensity or malignancy of the disease.

The intense inflammation of the fauces, which is sometimes followed by gangrene, inflammation of the Eustachian tube, otitis media, adenitis and cellulitis, together furnish abundant evidence of serious local trouble, as well as of systemic intoxication.

In scarlatina, various bacteria abound on the faecal surfaces; of these, streptococci have been constantly

found, and seem to predominate. It would appear that these enter the circulation, and may give rise to certain of the complications.

Some authors ascribe the rheumatism that occurs in the course of scarlatina to bacterial agencies; many pathologists are also of the opinion that the glomerulonephritis is caused by microorganisms.

In view of these facts, the application of antiseptic solutions to the naso-pharynx would seem to be useful in preventing the entrance of the germs into the body, with the serious results that may follow.

Peroxide of hydrogen in the strength of one part to four of water may be used for the fauces, and one part to eight of water for the nares; or corrosive sublimate may be used in the strength of two grains to a pint of water, but not to be applied oftener than every three hours.

Dr. Smith uses a lotion composed of boric acid, two drams; borate of soda, two drams; chloride of soda, one dram; and water, a pint. One fluidram of this mixture is to be injected into each nostril every hour. In using any one of these lotions, they should first be warmed.

In addition, in the sthenic cases, with high fever, cold applications to the throat may be useful.

Eclampsia is always a serious complication. It occurs early from hyperpyrexia, or if late in the disease, from uremia. Restlessness, jactitation, and delirium should arouse suspicions of possible eclampsia, and indicate measures to prevent this complication. If, in the early stage, cold-water treatment to reduce fever, in addition to the local antiseptic alluded to, with the internal administration of bromides, may forestall this alarming complication.

Aconite and phenacetin may confidently be recommended in the hyperpyrexia of cases not markedly adynamic. In general, the other antipyretics are either not to be relied upon, or are harmful. Sodium salicylate at times causes albuminuria, or may be the starting-point of a nephritis.

Ante-mortem heart-clots would probably be prevented by active stimulation—the administration of musk, ammonia, etc. Scarlatinal rheumatism, in itself not a serious complication, becomes important when it is considered how frequently endocarditis or pericarditis is simultaneously present.

Though it has been suggested that both rheumatism and glomerulo-nephritis occurring in scarlatina are of bacterial origin, either may be caused by cold; it is, therefore, necessary to avoid exposure of the patient, especially during desquamation.

DR. FRUITNIGHT, of New York, expressed the belief that the complications last mentioned result from exposure; he therefore always insists upon (1) warmth, (2) rest, and (3) milk diet.

A paper on "The Most Diagnostic Symptoms of the Early Stage of Lobar Pneumonia, and the Differential Diagnosis from Such Diseases as Meningitis, Malaria, Scarlet Fever, etc.," was read by title, the author, DR. T. S. LATIMER, of Baltimore, being unable to be present.

DR. F. FORCHHEIMER, of Cincinnati, read a paper on "The Diagnosis of Consolidation of the Lung from Effusion (serous or purulent), and the Differential Diagnosis between Lobar Pneumonia and Broncho-pneumonia." He first considered the diagnosis of consoli-

dation from effusion. In classical cases little difficulty should be experienced, but the matter is not so simple in atypical cases. The possibility of encysted effusions must be kept in mind. Dr. Forchheimer does not concur in the view that this is a common condition in children. Most encysted pleuritis in childhood are tuberculous. Inspection may reveal important information. In the case of fluid, there will possibly be bulging. Especial stress was laid upon the increased resistance, the sensation on percussion being characteristic. In consolidation there may be contraction, or at least no bulging, with increased vocal resonance, and fremitus and blowing breathing, perhaps with râles. In children auscultation may be misleading, and is, therefore, not so useful as in the adult. Egophony is rarely heard in children. Dr. Forchheimer cannot admit the existence of idiopathic pleuritis. Empyema was considered a secondary effusion; the use of the terms primary and secondary in this connection he thinks still desirable. The effusion is sometimes gelatinous, so that hypodermatic puncture does not disclose its presence.

In tapping, the puncture should be made as low as possible, in the ninth or tenth interspace—in recumbency, in the posterior axillary line; in the upright posture, in the mid-axillary line; and if the body is inclined forward, in the anterior axillary line.

DR. WILLIAM OSLER, of Baltimore, followed with a paper on "The Diagnosis of Broncho-pneumonia (Acute and Chronic) from Tuberculosis," in which he pointed out that broncho-pneumonia is a lesion, and not a disease. The following suggestive points were considered: 1. The frequency of tuberculosis in infants; tuberculosis is much more frequent than was formerly supposed. 2. The circumstances under which cases of broncho-pneumonia may occur; a child may appear perfectly healthy, with an excellent family history, yet suddenly be attacked; in pulmonary tuberculosis in children, the bronchial glands are involved; convalescence from the acute fevers, measles, scarlet fever, whooping-cough, etc., are fraught with danger. 3. Clinical types; the acute pneumonic form of tuberculosis is not recognized in infants; the condition is usually either lobular or pseudo-lobar. 4. Diagnosis; in acute cases, it is impossible to determine whether the condition is tuberculous or not. Tuberculous and non-tuberculous disease probably affect the upper lobes of the lung with about equal frequency. In the middle portions of the lung, tuberculous disease is apt to predominate in frequency. Bilateral disease is more common after diphtheria and measles.

The physical examination may yield uncertain signs; the family and personal histories are therefore important. If possible, the sputum should be examined.

DR. L. EMMETT HOLT, of New York, followed with a paper on "The Diagnosis of Broncho-pneumonia from Bronchitis, also the Temperature-range in Acute Pneumonia, both Lobular and Lobar." Dr. Holt's experience has been very rich, and being connected, as he is, with the New York Foundling Asylum, opportunity is afforded of watching the cases from their incipiency, as well as before and after the illness. Many temperature-charts were exhibited, showing different types of the disease. Dr. Holt does not believe that the remittent variety has any connection with malaria. In acute bronchitis the temperature is apt to rise abruptly to 104°

or 105° , the fever is continued, and a crisis occurs on about the fifth or seventh day, the temperature frequently falling below the normal. In one-half of the cases a temperature of 105° or more was reached. The highest temperature that he had observed followed by recovery was $106\frac{3}{4}^{\circ}$. The mortality increases rapidly as the temperature rises above 104.5° . About one-half of the cases terminated by lysis. The critical day seems to be the seventh. In broncho-pneumonia, the temperature is apt to rise gradually, in a few days to become fluctuating, and finally to fall gradually. The most favorable temperature seems to be from 104° to 104.5° . The mortality increases with much variation either above or below this point.

The differentiation of acute bronchitis from broncho-pneumonia would be made by the temperature-record, the severer symptoms of the latter, and the physical signs. If there is continued high temperature for some days, pneumonia should be suspected, but a low temperature does not exclude pneumonia. Cyanosis and evidences of consolidation point to pneumonia. Again, unilateral bronchitis rarely or never occurs, whereas a localized bronchitis of the finer tubes would indicate pneumonia.

In the discussion that followed, DR. JACOBI, in speaking of the delay in resolution, expressed the belief that the pneumonia was generally a mixed one; that rarely did pure lobar or lobular pneumonia occur in infancy. He thinks that the diagnosis may frequently be made on the second day—difficulty arising in cases in which the pneumonia is central. Some cases are apt to be mistaken for meningitis. The respiration may here be the deciding point. In his experience many cases have occurred in which dulness was detected only in the axillary region, and thus apt to be overlooked. Only the gentlest percussion should be applied in the case of children. Bronchophony, if detected, is a valuable sign.

Enlarged mediastinal glands may occasion delay and difficulty in arriving at a diagnosis.

DR. HOLT had frequently observed at autopsies the existence of a diffuse purulent meningitis in cases in which there had been no brain symptoms before death.

SECOND DAY—SEPTEMBER 23D.

DR. W. OSLER, of Baltimore, presented "A Specimen of Congenital Heart Disease."

DR. A. SEIBERT, of New York, presented "Further Report on Sub-membranous Local Treatment of Pharyngeal Diphtheria." Injections of fresh aqua chlori (U. S. Pharmacopeia) are made into and beneath the false membranes found on the tonsils and other accessible parts of the pharynx, about fifteen drops being injected into each spot; if necessary, from six to eight injections can be made without causing toxic effects. The syringe for the purpose consists of metal rod and a small plate holding the points of five hypodermic needles, all attached to an ordinary hypodermic syringe. Thirty-five cases treated by this method had already been reported. To these were added thirty-seven treated by others, and thirteen treated personally. Of these fifty cases four were of the scarlatinal variety. The age of the patients ranged from five months to thirty years, thirty-three being under seven years of age. In forty-two cases the injections of chlorine water

proved effectual in checking the diphtheritic process; partial effects were observed in four cases, and no effect in three cases.

Imperfect results were obtained in cases in which inaccessible portions of the pharynx were primarily involved. Of the fifty cases, four ended fatally. In all, eighty-five cases treated by sub-membranous injections have been collected. Diphtheritic paralysis was not noticed in any of these cases. Six died, or about 7.5 per cent.

The conclusion arrived at was, that in pharyngeal diphtheria submembranous local injections of fresh chlorine water may, with good effect, be made in all cases in which local treatment is applicable.

DR. H. KOPLIK, of New York, regarded the paper as a perfect bacteriological report as applied to therapeutics, but he expressed the admonition that diphtheria varies greatly in different epidemics. To a question from DR. W. P. Northrup he replied that he could not say how deep the bacteria could be found, but he believed that the treatment proposed by DR. Seibert was in the proper direction, as the future would show.

DR. J. L. SMITH, of New York, said that the Klebs-Löffler bacillus does not enter the tissues, but its toxic products occasion the systemic infection. He feared that injury to the bloodvessels might allow the ingress of the poison.

DR. L. E. HOLT, of New York, stated that he had not been successful in the treatment of diphtheria by medicinal means. He expressed the opinion that diphtheria is first a local, then a constitutional disease. Viewed in that light, he believed the treatment by injections of chlorine water to be proper.

THE PRESIDENT stated that he was never sanguine in the treatment of diphtheria. In his experience the results of treatment were the most satisfactory when the false membrane had been confined to the tonsils.

In closing the discussion, DR. Seibert stated that he had found the Klebs-Löffler bacillus in a large proportion of his cases, which he regarded as conclusive that he had treated diphtheria, and not some similar but different affection. He had only noticed extension of the membrane when he had not made the injections with thoroughness. The injections should reach the submucous tissue, and general treatment should not be omitted. He had rarely found it necessary to use a gag, and if the first injection was thorough he was not compelled to repeat it.

DR. W. D. BOOKER, of Baltimore, read an interesting report of a "Case of Ulcerative Catarrhal Dysentery," giving details of his bacteriological investigations.

DR. C. W. EARLE, of Chicago, presented a paper entitled "Manifestations of 'La Grippe' in Children," which the Society moved be abstracted and read at a future meeting.

The paper of DR. DILLON BROWN, of New York, on "The Treatment of Laryngeal Diphtheria by Calomel Sublimations," was read by title; as was the paper of

DR. F. E. WAXMAN, of Chicago, on "Stricture of the Esophagus Occurring in Children," with report of a case; and that of

DR. F. HUBER, of New York, on a "Case of Pulmonary Abscess; Operation and Recovery, with Remarks."

(To be continued.)